

Monitoring the costs of WASH contracts for unit cost analyses and improved transparency

Authors

Arjen Naafs¹ and Julia Zita² (WASHCost Mozambique).

Abstract

One of the components to monitor of WASH Services is the cost. WASHCost in Mozambique has been working to obtain cost data by using existing reporting structures and feeding the results directly back to people participating in providing data. Over the years, WASHCost has succeeded in obtaining, analysing and disseminating sector contract data in more than four cycles of action research.

This paper discusses how the action research cycle data feeds into sector debates, such as budgeting and sector financing. By analyses of the evolution of the process, the strength and weaknesses are brought forward. The authors show that there is scope for widening the process to include small town systems and sanitation, but that care needs to be taken to keep the data as simple as possible. The desire to disaggregate needs to be balanced with the difficulties of obtaining meaningful information from sufficient contracts and interventions. The paper concludes with the specific challenges to use this data for transparency purposes.

Keywords

Mozambique, WASH, monitoring, borehole, costs, contracts, planning cycles.

Introduction

Like many developing countries, Mozambique is striving to attain the Millennium Development Goals for water and sanitation. The government of Mozambique has recognised the need for reliable cost data, in particular to support the decentralisation processes in the country (DNA, 2008). This was a major factor in the WASHCost project being implemented in Mozambique and the Directorate of Water (DNA) being the project's host.

When it was launched in Mozambique in November 2008, one of the first questions from partners was the seemingly simple question "How much does a borehole cost". In order to answer this question, the team started to collect rural water contract data. The objective of this paper is to describe how this relatively simple principle has led to a monitoring tool and that this is a good example of an action research model being embedded within the government.

¹ Former Country Coordinator WASHCost Mozambique (Arjen.washcost@gmail.com), currently Regional Technical Advisor South Asia WaterAid (arjennaafs@wateraid.org)

² Former Data analyst WASHCost (Julia.washcost@gmail.com) currently Data analyst National Water Department Mozambique

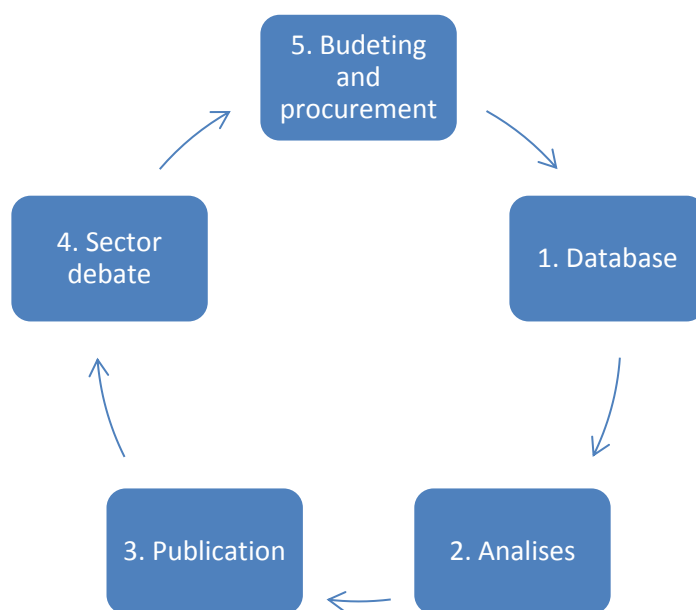
Methodology

The Action Research Model

The WASHCost approach is based on a Theory of Change, which can be described (after Moriarty et al, 2010) as an approach in which research into unit costs feeds into a “Learning Alliance” made up of key sector actors. By involving those who must change in firstly identifying the cost data, and latterly defining necessary changes to the system and behaviours, the process of change will become self-reinforced and internally driven. This can be considered as a classic action research model.

The action research model that emerged in Mozambique is indicated in Figure 1. Using existing governmental structures, key parameters on each contract are stored in a simple Excel database (step 1). After analysis (step 2), this is fed back to the sector (step 3 & 4) to be used in the next round of budgeting and procurement. This cycle is currently followed twice a year.

Figure 1: Action Research Model used for contract monitoring in Mozambique.



Database

The sources of the data are the signed contracts between the government and contractors. The eight key parameters collected are listed in

Table 1: Key parameters.

Key parameters	Description
Code of contract	Unique Coding as defined by procurement
Contract partners	Client and contractors name

Objective	Type of intervention (type of water point, construction/rehabilitation)
Quantities	Number of water points
Value	Contract value and currency
Financer	Donor, Government administration
Location	Province, Districts
Date	Year and month

The data is entered centrally in a single Excel sheet, of which a sample is publically available³. The current database has the key parameters on more than 700 contracts (Table), including information on nearly 6,000 new boreholes (of which 1781 are before 2009 and 4154 are 2009-2012).

Table 2: Contracts currently in database.

Water point type	Activity	Nº contracts	Nº systems
Boreholes	Construction	213	5935
	Rehabilitation	108	1476
	Supervision	146	4488
	Community mobilisation	44	1254
	Geophysical studies	5	144
Shallow wells	Construction	15	163
	Rehabilitation	5	23
Small systems	Construction	20	43
	Rehabilitation	25	30
	Supervision	8	28
	District wide community support	128	
	TOTAL	722	

As the source is a signed paper document and the values never change, a high reliability and accuracy of the key parameters is achieved. The main database is stored on a dropbox folder shared between 4-5 key members.

Analyses

The basic analysis is integrated in the excel database (using pivot tables) and feeds straight into the tables of the now fairly standardised 6 monthly reports. The standard analyses include cost per type of intervention (Table 1), per region (Figure 1), outlier analyses (Figure 2) and cost per person. To explain the variance and trends, individual people are contacted to provide insights and add explanations before publication is done. Also, GIS tools are used to visualise the data.

Table 1: Example of key results of bi-annual publication.

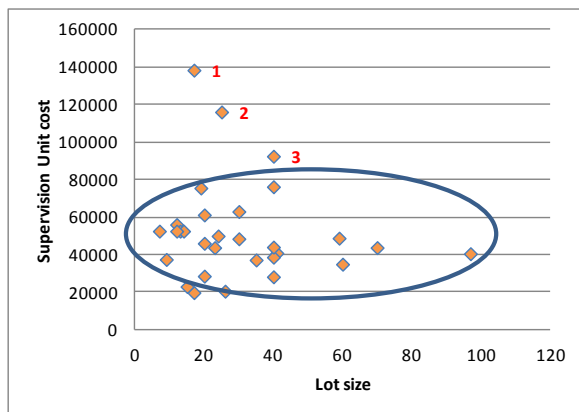
Borehole	Nº contracts	Nº Boreholes	Total amount contracts	Average Unit cost
----------	--------------	--------------	------------------------	-------------------

³www.washcost.info/content/download/1854/12713/file/2011%20Mozambique%20Contract%20data%20base%20public.zip

			Meticais 2011	USD 2011	Meticais 2011	USD 2011
Construction	29	750	271,834,265	\$9,538,044	362,446	\$12,717
Rehabilitation	9	41	2,447,056	\$85,862	59,684	\$2,094
Supervision	30	915	45,677,545	\$1,602,721	49,921	\$1,752
Grand Total	68	1706	319,958,865	\$11,226,627		

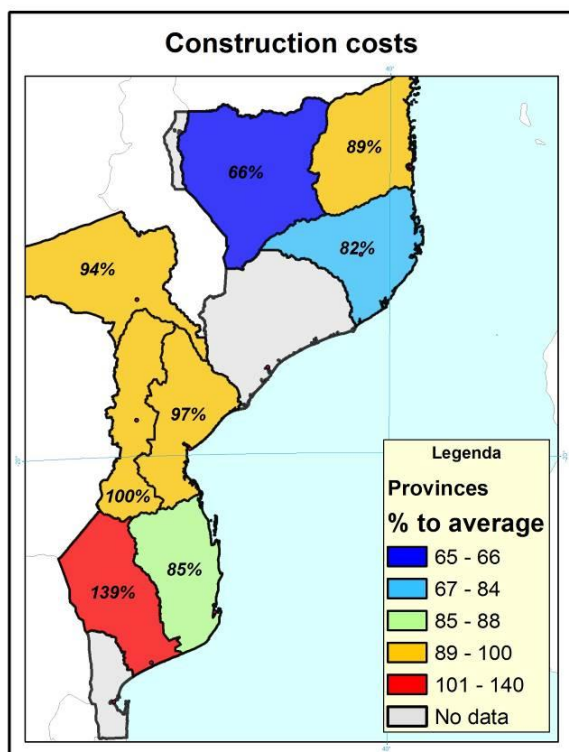
Source: Zita and Naafs 2011a.

Figure 2: Example of outlier analyses: Supervision costs related versus lot size the contract. The circle indicates the interval with the normal costs.



Source: Zita and Naafs 2011a.

Figure 3: Example of regional analyses: Provincial costs in relation to national average cost.



Source: Zita and Naafs 2011a.

More detailed analyses for specific research have included cost per contractor, per financier, per life cycle cost category and of course development of unit costs over time. For the latter, all costs are brought into current values.

Publication

In general, two key briefing notes are published per year, with the first covering all contracts from January to June and the second for the whole year. In total, six publications have been made (one for 2009; one for 2010; two for 2011; two for 2012)⁴. All are in Portuguese, though one is in English, as well, and is quoted here as example (Zita and Naafs 2011a). Additional publications are made on other themes such as support costs (Zita and Naafs 2011b) or the trend of costs over time⁴.

The main distribution has been by e-mail to the GAS (*Grupo de Água e Saneamento*), an active platform of around 200 sector professionals in the country. In addition, the briefing notes have been provided in printed form at main events and have been made available on www.washcost.info (and www.dna.gov.mz – currently under construction). Key publications have been translated from Portuguese to English for the international audience.

Sector debate

Aside from the above mentioned GAS platform (with monthly meetings), there are three key meetings in the government planning cycle. The first is in the Joint Annual Review in March, during which the unit costs of the previous year are presented. In June, all key Provincial and National staff meet for planning and budgeting the next year. This is a key moment to collect and verify information data of the first half of the year. This is processed and published before the third annual budget meeting, which is in November. As the contract database is hosted by the National Water Department and championed by department directors, the cost analyses normally gets a time slot.

Reconstructed quote during November 2011 meeting based on publication of Zita and Naafs 2011a.

Rehabilitation costs have risen 37% from 44,000 meticaís (1,500 USD) in 2010 to 60,000 meticaís (2,100 USD) in 2011, which is very high per source. What is going on here?

Reconstructed quote during GAS June 2012 meeting based on publication Zita and Naafs 2011b.

A cost of 3,000,000 meticaís (100,000 USD) to support communities per district per year is very expensive. Can we afford this or do we need to change our approach?

Budgeting and procurement

At the June and November meetings, the unit cost of the previous year is used for budgeting for the next year (with inflation correction). In principle, the Provincial staff

⁴ These can be found on www.washcost.info/page/1350 . Note that last publication 2012 is forthcoming.

(responsible for most of the procurement) can evaluate proposals of contractors by comparing them to last year's figures (with inflation correction). To what level this takes place, is not captured or documented.

Evolution

In 2009, the project team started to collect the information on contracts during various field visits and literature research. However, the process only got momentum when an additional research officer was taken on board mid-2010 who personally e-mailed and did follow-up calls to all the 10 Provincial Departments. It was a time consuming process, due to people not responding to requests made from national level. This improved in 2011, when staff at Provincial level saw the first analyses coming back to them. The data collection was further enhanced in 2011 as it was combined with the June national planning meeting. In 2012, reporting on contract data had become part of the standard reporting.

To publish the results of 2009 took almost a year, whereas the results of 2011 were published within two months. Currently, the effort needed is about four weeks per year (for two rounds of reporting) of a data analyst to store, verify and analyse the data in a standardised database. In addition, three days from a senior person is needed for finalisation of the standard briefing notes. Dissemination has been mostly via e-mail and printed versions at sector meetings and needs, aside from printing, limited resources.

It is recognised that the database does not contain all the rural water contracts of 2009 and 2010 but 2011 and 2012 can be considered complete, at least for governmental contracts. However, contracts done by NGO's have only been obtained on ad-hoc basis, due to a general lack of NGO's informing government. Strengthening SINAS (*Sistema de Informação Nacional de Água e Saneamento* – National Information System Water and Sanitation⁵) should improve this in the future.

The type of data that has been collected has also been evolving. Initially, only data was collected on rural water point construction, rehabilitation and supervision. Once the communication lines were established (end 2011), the scope extended to also include community mobilisation and sanitation. A few contracts on small systems (Table) were captured, but in order to analyse these meaningfully, considerable more parameters were needed (e.g. size of system, type of source captured, etc) and the complexity did not allow it to fit these in the same database as rural water points. A parallel database was prepared, but the collection for small system faltered as too many details were needed from the partners.

Also in the case of sanitation, there was too much variety, and above all, the contracts were managed by districts and the communication lines to collect data at that level were not good enough to collect meaningful sample size.

⁵ Note: this is not an electronic system: it is much more about roles, responsibilities, reporting and rights to data.

In mid-2011, it was tried to update the status of the contract on a quarterly basis – basically adding a performance factor to the tool. This did not work very well as it added an extra layer of complexity (time) to the database structure. Though arguably a separate database could have been made, also the frequency of data collection would need to be increased. An initiative to record the final figures and values once the construction was completed also proved difficult due to financial retention (till one year after completion) and the long time it takes for contracts to be completed.

At the start of the process, it was mainly a project driven process, but as it evolved, and DNA took more ownership, it became one of the key outputs of SINAS, effectively turning the action research cycle into a monitoring and evaluation cycle.

In recent years, the sector has been realising that the publications and the database are also a transparency tool: monitoring of unit costs can reveal anomalies. Though arguably, it would be more important to monitor contracts at completion time to really be transparent.

What makes it work

When looking back and analysing the evolution, the following key lessons are considered to have contributed to the progress of the initiative and use of the data:

1. Willingness, interest and good leadership within DNA to support the understanding of costs.
2. Shared resources, with key staff linked to the project and to DNA, as well as hosting agreements to be physically based within DNA.
3. Keeping the data collection simple and verifiable.
4. Feedback has been provided regularly and quickly to partners that supplied data through the six-monthly reports.
5. A national focal point with feels responsibility and is held accountable for the process.
6. Having initially the back-up and financial support from a project (WASHCost) helped the action research to go through the first more problematic cycles.

What did not work well

In evaluating the history, a couple of aspects have been tried up to a certain extent and were found problematic:

1. Expanding the scope with progress or completion data
2. Expanding the process to including detailed bill of quantities
3. Getting more frequent updates was not found practical and 6 monthly updates the best possible
4. Though it is found positive to have an individual responsible, more people should (have been) involved in the data collection and analyses. This would reduce the vulnerability and dependence on one person

5. Though the data is based on signed contracts, an initial idea had been to involve the private sector to provide information, which could be used for triangulation. This has not been achieved.
6. One of the strength of the system is that it relies on the government structure, however, that has led to limited participation of NGOs
7. Part of the collected data is also collected in the procurement department and collaboration would have made sense. Unfortunately, procurement works very decentralised which made a joint approach impossible.
8. Setting up a web database and having people enter the data themselves proved to be a bridge too far in Mozambique.

Findings and discussion

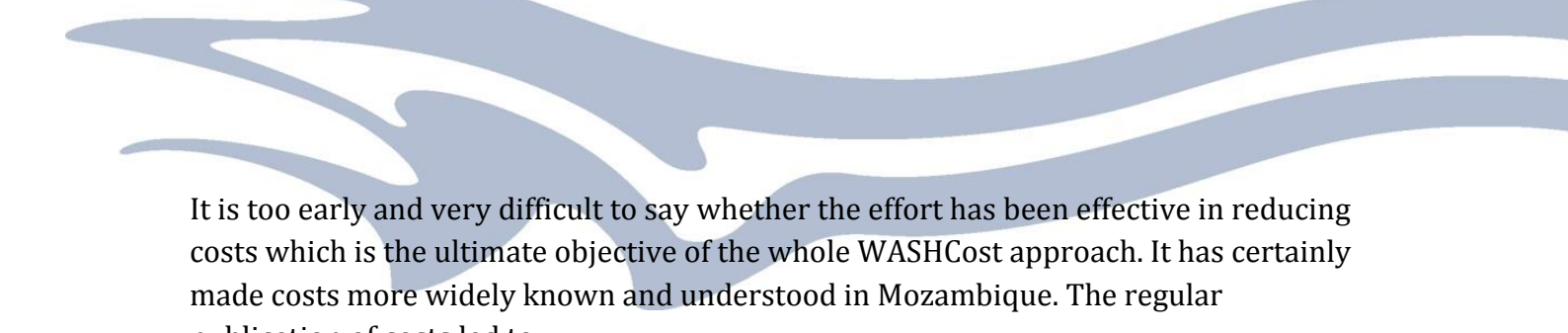
Over the last four years, provincial partners provided information on more than 700 contracts, representing amongst others unit cost data for more than 4,000 boreholes. This wealth of information has been analysed and shared around planning meetings which resulted in regular, transparent and detailed information twice a year. These key outputs for the sector will continue to be published by SINAS and the National Directorate for Water (DNA), even after the project support has left.

Due to the fact that the initial contract values never change and are verifiable, the publications have high credibility and transparency. The limited and simple parameters are relatively easy to analyse, yet the results are interesting to a wide range of stakeholders: from donors, government themselves to private sector (drillers) and NGOs (though the latter two do not provide input).

We, therefore, think that the presented model of action research based on collecting contract data of relatively simple, standard interventions such as borehole drilling, shallow well construction or community mobilisation is a strong one and countries similar to Mozambique, where basic unit costs are poorly available and most contracting is done via the government, would do well to consider adopting it.

Having said that, it is also recognised that the current process had considerable support from the initial project approach and even so the process is still not complete nor perfect. In particular, contract completion data should be collected as well as a better involvement of NGOs is desirable. The current process is also rather vulnerable as the details are known to few.

In the case of Mozambique, the expansion of the system to include bill of quantities, piped water systems or sanitation has not been very successful due to the variability and disaggregation needed. To analyse such contracts and to make them part of a monitoring system, considerable more efforts will need to be undertaken, or lower frequency of sample should be strived. The desire to disaggregate needs to be balanced with the difficulties of obtaining meaningful information from sufficient contracts and interventions.



It is too early and very difficult to say whether the effort has been effective in reducing costs which is the ultimate objective of the whole WASHCost approach. It has certainly made costs more widely known and understood in Mozambique. The regular publication of costs led to:

- A clear baseline on existing sector costs. This helps in budgeting for the next year and with procurement and feeds into sector debates.
- Major deviations from average costs being analysed and discussed (e.g. high rehabilitation costs linked to a new type of pump);
- Unit cost information triggering value for money discussions.

On a more critical side, there may be other impacts. It has also been pointed out that drillers charging relatively low prices might even be encouraged on seeing the data to increase what they charge. In addition, there is a threat that naming and shaming is done too quickly. Not all of the data is shared in the online version of the database and it is made anonymous due to this risk (leaving out financier and contractor). The concern is that, without sufficient extra information for interpretation, this data would be prone to misuse. For example, a certain financier may target the poorest and hardest to reach areas in each province and where operating costs e.g. for drilling boreholes are much higher than in accessible locations near the main roads.

Finally, it is important to recognise that the publication of contract data was not a transparency initiative. It is actually a tool to understand costs (and that is why people submit data), and only as a secondary spin-off can be regarded as a tool for promoting transparency. Willingness to cooperate might actually reduce if transparency were indicated as one of the objectives. This component will be discussed in a forthcoming case study publication (Butterworth, forthcoming).

References

Butterworth, J. “*Case study No.1: Publication of rural water contract data*”, part of anti-corruption strategy Mozambique, forthcoming

DNA, 2008. *Programa Nacional de Abastecimento de Água e Saneamento Rural* (PRONASAR), segundo draft. Draft. Maputo: DNA.

Moriarty, P. et al., 2010. *WASHCost's theory of change: reforms in the water sector and what they mean for the use of unit costs*. (WASHCost Working Paper 1) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/1034>> [Accessed 21 January 2013].

Naafs, A., “*Monitoring WASH contracts in Mozambique*” poster presentation RWSN 2011 Available at: <<http://rwsnforum.files.wordpress.com/2011/12/221vpp-naafs-mozambique.pdf>> [Accessed 21 January 2013]

Salomon Lda. and WASHCost Mozambique, 2008. *Assessment of the water and sanitation sector of Mozambique*: final report for International Water and Sanitation Centre. [online] Maputo: Mozambique. Available at: <<http://www.washcost.info/content/download/168/1299/file/Sector%20Assessment%20WASHCost%20Mozambique%20Final%20report.pdf>> [Accessed 21 January 2013].

WASHCost Mozambique, 2012, *10 Key messages about WASH costs and service levels in Mozambique*, booklet produced by McIntyre, P. Available at: <<http://www.washcost.info/content/download/2583/17655/file/WASHCost%2010%20key%20messages%20Mozambique%20English.pdf>> [Accessed 21 January 2013]

Zita, J. and Naafs, A., 2011a. *Costs of rural water point sources in Mozambique: unit costs analysis of contracts January up to June 2011*. (WASHCost Mozambique Briefing Note C03A) [online] Maputo: WASHCost Mozambique. Available at: <http://www.washcost.info/media/files/washcost_c_03a_costs_of_point_sources_jan_jun_2011_mozambique_english> [Accessed 21 January 2013].

Zita, J. e Naafs, A., 2011b. *Cost of PEC-Zonal activities in Mozambique: analysis of contract costs from 2008 up to 2011* (WASHCost Mozambique Briefing Note D 01) [online] Maputo: WASHCost Mozambique. Available at: Available at: <<http://www.washcost.info/page/1804>.