

# Addressing the Sustainability Crisis

## Lessons from research on managing rural water projects

Ben Taylor, WaterAid Tanzania  
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### What is the sustainability crisis?

- Nearly half (46%) of public improved waterpoints in rural areas of Tanzania are not functioning.
- Two years after installation, already 25% of public improved waterpoints are non-functional.
- Almost half of all investment in rural water supply is effectively wasted.
- Up to 7.5 million rural Tanzanians lack access to clean and safe water due to functionality problems.

### How can it be overcome?

This brief proposes some practical ideas for district water departments to get to grips with sustainability, based on the findings of three recent WaterAid-funded studies:

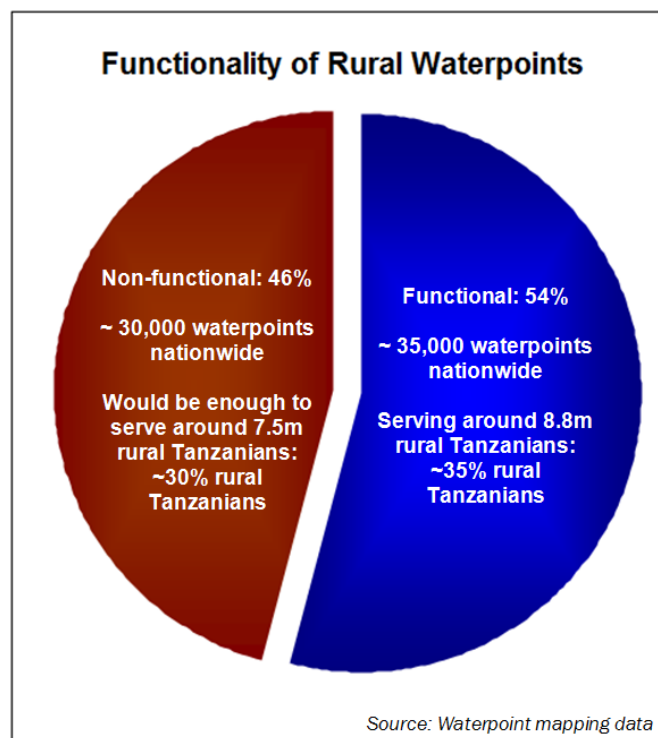
- Get organised for sustainability: collect and analyse local data on sustainability
- Improve community participation: balancing participation and decisions that support sustainability
- Capitalise on the potential of small scale private operators
- Consolidate progress on water rights and COWSO registration
- Improve monitoring and regulation mechanisms at village and district level
- Improve support services offered by district water departments

## Introduction

Sustainability of rural water supplies is a major challenge in Tanzania. Waterpoint Mapping (WPM) surveys conducted in 51 districts found that only 54% of all public improved waterpoints are functional. Even very new waterpoints (WPs) have a problem: the same surveys found that just two years after project completion, already a quarter are no longer functioning. Assuming similar functionality rates apply nationwide, there are around 30,000 non-functioning rural waterpoints in Tanzania. This number would be enough to provide access to clean and safe water to 7.5 million rural Tanzanians (assuming 250 people served per waterpoint).

The Water Sector Development Programme (WSDP) is a major step forward for the sector. It has increased funding for rural

water supply from TZS 19bn/- in 2005/6 to TZS 93bn/- budgeted for 2008/9 and has made funding available nationwide for the first time. But if functionality rates remain as they are, around half of this money will end up being wasted.



This paper aims to help ensure that this doesn't happen, to help ensure that the sustainability record of rural water supplies in Tanzania improves. It presents a summary of the findings and recommendations of a new booklet<sup>i</sup> on sustainability and management of rural water supply, drawing on three recent WaterAid-funded research projects<sup>ii</sup> to answer the following two questions:

1. What causes the sustainability challenge?
2. What can we do about it?

## Understanding the sustainability challenge

Sustainability of rural water supplies depends on a wide range of factors. There are the obvious technological factors, such as the durability of the hardware involved, the reliability of the water source, etc? But even with the most durable hardware and most reliable source, you can guarantee that it will break down at some point.

What happens after it breaks down is absolutely critical for sustainability. Does anyone take responsibility for the repairs? Are there funds available for this? Can the right spare parts be found? Does anyone have the technical skills needed? These are management questions, looking at how rural water supply schemes are owned and managed after installation, and at how the planning and installation process is conducted.

These are not new questions, and anyone working in rural water supply will be familiar with all these issues. It is worth starting with the most common answers to these questions, while not forgetting the data that tells us that these answers have not solved the problem.

Two aspects of management and governance are widely seen as the keys to sustainability. First, community participation during project selection, design and

installation can help achieve an increased sense of ownership on the part of the community. Communities that feel they own a handpump are more likely to look after it.

Second, the institutional arrangements for managing the water project are also seen as important. If responsibilities are clear and there are no conflicts of interest, the management entity – known as a Community Owned Water Supply Organisation (COWSO) – will take its responsibility for sustainability seriously.

The three studies that form the basis of this booklet all explored these management and governance issues further. This includes looking at how new policies are working in practice

– do more autonomous COWSOs shows signs of performing better than VWCs, for example? It also includes looking at the practical challenges of good software – what are the challenges associated with participation and ownership, for example? And the studies go further, to look at other issues such as regulation and the potential of private operators. The main lessons from these studies are presented in the box below.

**What happens when a waterpoint breaks down is absolutely critical for sustainability. Does anyone take responsibility for the repairs? Are there funds available for this? Can the right spare parts be found? Does anyone have the technical skills needed?**

### **Box 1 – Key lessons for sustainability**

#### ***Balance participation and ownership with good decision making***

- Sustainability depends both on community participation in decision making and on good decisions being made. There is therefore a tension between effective participation in planning and communities' limited understanding of technical and management options.

#### ***Management options: autonomy and private operators***

- More autonomous entities – Water User Groups, Water User Associations and (especially) private operators – were found to be more successful at achieving sustainability. In particular, autonomy helped ensure that funds are available when needed for repairs by improving revenue collection and reducing mismanagement. The example on the facing page describes this kind of problem.
- The potential of private operators comes with a risk of excessive profiteering. A good contract, substantial bond and regulatory support from district level reduce this risk.

#### ***Water rights and COWSO registration***

- For COWSOs to access and protect legal water rights requires that they are able i) to register as independent legal entities and ii) to apply for and receive water rights from Basin Water Offices (BWOs). These two processes have both been challenging, though with recent legislation and the growing capacity of BWOs they should become easier.

#### ***Monitoring and regulation***

- Monitoring and regulation of COWSO by village government and district water departments is important. Primary responsibility for the sustainability of individual projects has to rest with the COWSO, but both village and district authorities can help reduce the risk of mismanagement.

#### ***Ongoing support roles of the district water department***

- District water departments also have an important role to play in providing ongoing technical support. In particular, this includes supporting COWSOs to accessing spare parts and to conduct complex maintenance works.

## Case Study – Village A

### Background

Village A has piped scheme with a submersible pump. The scheme is estimated to be serving around 270 Households. Payment is Tshs 20/- per bucket collected. The community has been paying this way for four years.

Daily expenditure is estimated to be around 4000/- (this covers diesel and allowance for a person in charge). There is also Tshs 10,000/- being given to a watchman on a monthly basis. Let's look at these accounts in more detail:

#### Expected annual income and expenditure

|  |  |  |
|--|--|--|
| Income:  | 270 households x 3 buckets per day x 20/- per bucket:<br>x 365 days: | 16,200/- per day<br>5,931,000/- per year |
|  | Total expected annual income:  | 5,931,000/-                              |
| Expenditure:                                     | Daily costs: 4,000 per day x 365 days:                               | 1,424,000/-                              |
|  | Monthly costs: 10,000 per month x 12 months:                         | 120,000/-                                |
|  | Total expected annual expenditure:                                   | 1,544,000/-                              |
| <i>Expected profit /loss each year:</i>          |  | 4,369,000/- profit                       |
| Less maintenance costs in past four years (none) |  | 0  |
| <i>Expected bank balance after four years:</i>   |  | 17,088,000/-                             |
| <b>Actual bank balance</b>                       |  |  |
| <i>Actual bank balance after four years:</i>     |  | 300,000/-                                |

### Over 16 million shillings is “missing”!

This would be enough to pay for some pretty substantial maintenance works if the scheme were to break down – to replace the pump, repair the pipes, etc. Or it could be used to expand the network to other parts of the community. But the money is not there, so when the scheme breaks down – as it certainly will at some point – there will be nothing available for the repairs. And the amount missing is so high that even if some of our assumptions are inaccurate, there is still a lot of money missing.

### Where has the rest of money gone?

There are two main possibilities. First, it could be that the missing money was never actually collected – that a lot of people were not paying for the water they collected. But this seems unlikely because it would have to be almost nobody paying for water for the bank balance to be as low as it is.

Second, the missing money could have been collected and then used for something else. In some cases, money collected for water supply is used for other purposes such as building a village office or a school classroom. Although this might seem like a good idea, it means that when the water scheme breaks down there are no funds available to repair it. Alternatively, it could be that the person or people responsible for looking after the money have used it for their own purposes – that it has been stolen. In this particular case, this seems like the most likely explanation.

### How could this have been prevented?

The problem here is that the same group of people were responsible for collecting money and for looking after it, and there were no checks and balances to make sure they performed their job properly. If the people responsible had to publish monthly details of how much money they have collected and how much they have spent, this would make it harder for so much money to go missing.

Even better would be for them to put their monthly “profit” into a bank account so that it can only be accessed with the approval (and signature) of several people, including the district water engineer. The paying in slips can be made public, and the district water department can monitor the bank balance so that any problems are noticed early. This kind of monitoring and regulation can make a big difference to ensuring that funds are available when needed.

A step further would be to appoint a private operator to run the scheme. They would collect payments at the same agreed rate, be responsible for running costs and minor repairs and make a fixed monthly payment into a bank account that they cannot access. Based on the figures above, a 300,000/- monthly payment would leave the operator with a monthly profit of 64,000/-, a good income in a rural community. And the water fund bank balance would have been steadily increasing by 300,000/- per month, so that after four years there would be 14,400,000/- available for repairs.

## Practical ideas for improving sustainability

Based on these findings, we can recommend a package of simple measures for use by district water departments to improve sustainability. These are discussed in more detail in the longer booklet published alongside this policy brief.

### **Get organised for sustainability:**

Use waterpoint mapping data to analyse local sustainability challenges, both by analysing the data directly and by identifying some challenges to be investigated in more detail.

Collect data on existing COWSOs and VWCs, including the WPs they oversee, their income and expenditure and water fund balances.

### **Improve community participation in planning processes:**

Facilitators of new projects need to strike a careful balance between participation and decisions that support sustainability. This is a difficult skill that should not be sidelined in the rush to spend new money. Simple handouts with simple information on technological and management options as well as pricing guidelines can help, as can exchange visits to nearby schemes.

### **Capitalise on the potential of small scale private operators for rural schemes:**

Encourage private operators of rural water supply schemes, in order to create stronger incentives for sustainability. State the advantages and disadvantages of private operators during facilitation and take account of the interests of private operators during design.

Develop standard contracts for private operators with terms that prevent excessive profiteering and encourage good management.

### **Consolidate progress on water rights and COWSO registration:**

Use the recently passed national Water Laws enabling registration of COWSOs at district level to register both new and older COWSOs. Encourage villages with VWCs to shift to COWSOs.

### **Improve monitoring and regulation mechanisms:**

Update Waterpoint Mapping (WPM) data for closer ongoing monitoring of sustainability problems.

Collect data on all COWSOs on a regular basis, including financial performance data.

Develop a standard Memorandum of Understanding (MoU) between the district water department and each COWSO, outlining roles, responsibilities and regulatory mechanisms.

### **Improve support services offered by district water departments:**

Publish a service charter covering technical support services provided by the district water department to COWSOs. Ideally this would become part of the MoU with COWSOs discussed above. It is recommended that the charter should include details of what technical support services the department promises to provide and who is responsible for covering which costs.



<sup>i</sup> *Management for sustainability: practical lessons from three studies on the sustainability of rural water supply schemes.* WaterAid Tanzania, 2009.

<sup>ii</sup> Haysom, Alexia, 2006. *A study of the factors affecting sustainability of rural water supplies in Tanzania.* WaterAid Tanzania  
Moon, Sam, 2006. *Private operation in the rural water supply in central Tanzania: Quick fixes and slow transitions.* WaterAid Tanzania  
Nkongo, Diana, 2009. *Management and regulation for sustainable water supply schemes in rural communities.* WaterAid Tanzania

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