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Mobile phones as a tool for citizen monitoring of water supplies in rural Tanzania

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THE FUTURE OF WATER, SANITATION AND HYGIENE:
INNOVATION, ADAPTATION AND ENGAGEMENT IN A CHANGING WORLD

Mobile phones as a tool for citizen monitoring of water supplies in rural Tanzania

B. Taylor, Tanzania

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MajiMatone is an innovative programme using citizens' agency to promote accountability, equity and sustainability in rural water supply in Tanzania. The programme harnesses mobile phone technology and media partnerships to create user-friendly opportunities for citizens to bring problems to the attention of local government and to put pressure on local officials to solve these problems, thus increasing public accountability for water services. Concrete improvements in service delivery are not delivered by the programme itself, but by local government in response to pressure from citizens. The programme thus addresses the underlying political causes of low functionality rates and inequitable investment, rather than targeting the symptoms. The programme's pilot phase in three districts of Southern Tanzania ends in April 2011. Details of outputs and outcomes, achievements and challenges from this pilot phase will be presented and analysed in time for presentation at the WEDC conference in July 2011.

Project context: access to clean and safe water is a political issue

Ensuring reliable water supply for rural areas of Tanzania is a longstanding challenge. Household surveys report that 46% of households in rural areas had access to clean and safe water in 2000, a figure which dropped to 40% by 2007 (NBS 2009). In a situation like this where access is declining, there is no need to ask whether or not Tanzania is on track to meet national and MDG targets for rural water supply, though it is worth recognising how far the sector is off target – see Figure 1.

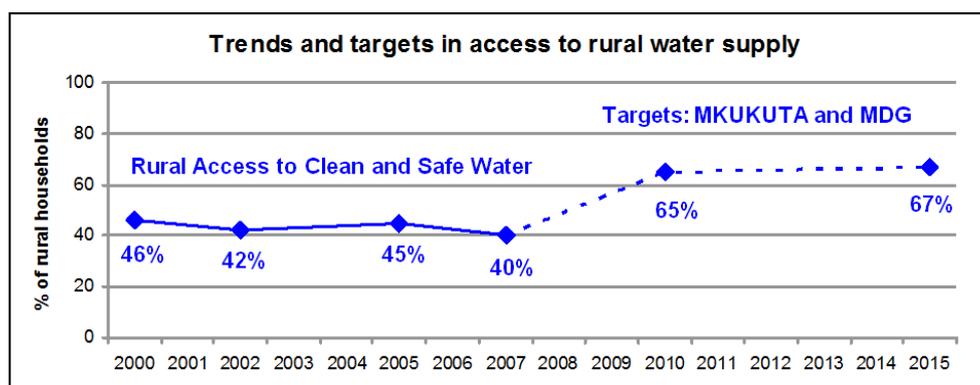
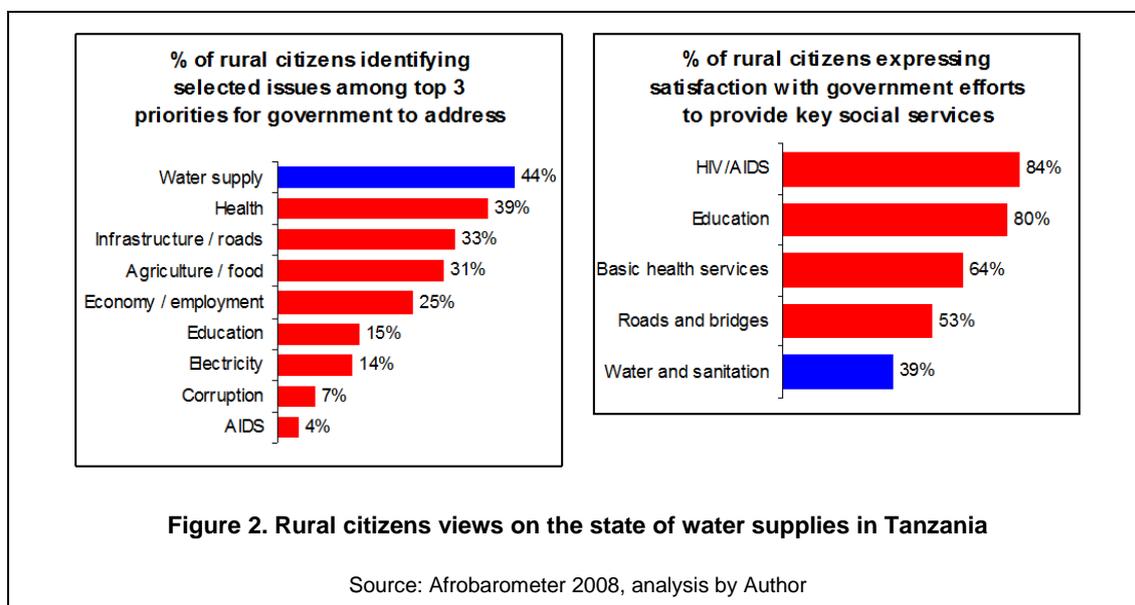


Figure 1. Rural water supply trends in Tanzania

Source: HBS 2000, 2007; Census 2002; DHS 2004-5

At the same time, rural citizens have consistently identified water supply as their top priority for government to address. The Afrobarometer surveys are the clearest expression of this: the 2008 survey (Afrobarometer 2008) reported water supply as rural citizens' highest priority for government action and highlighted low levels of satisfaction with government efforts to provide water and sanitation services – see Figure 2.

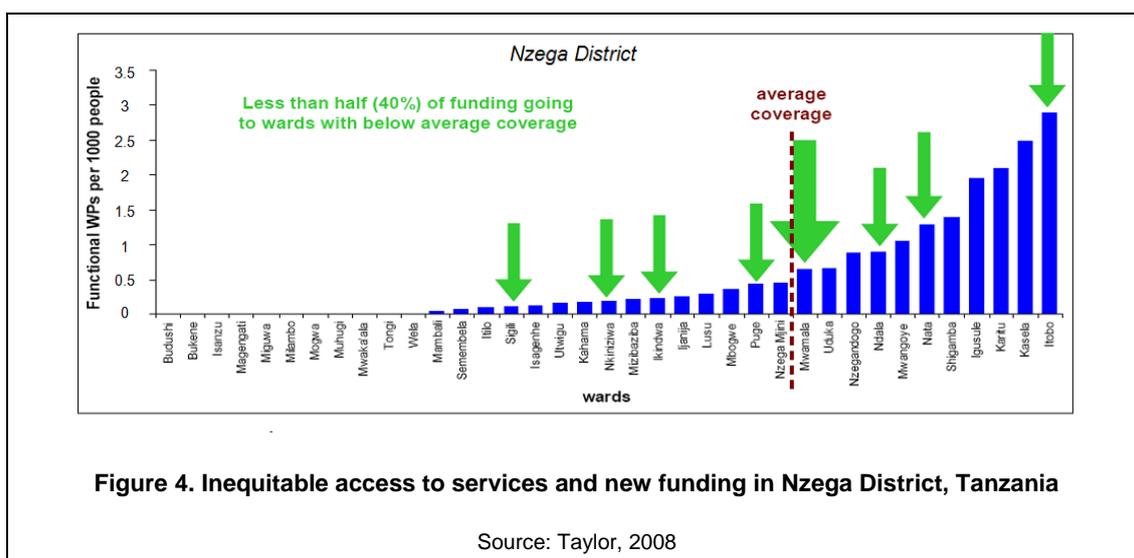
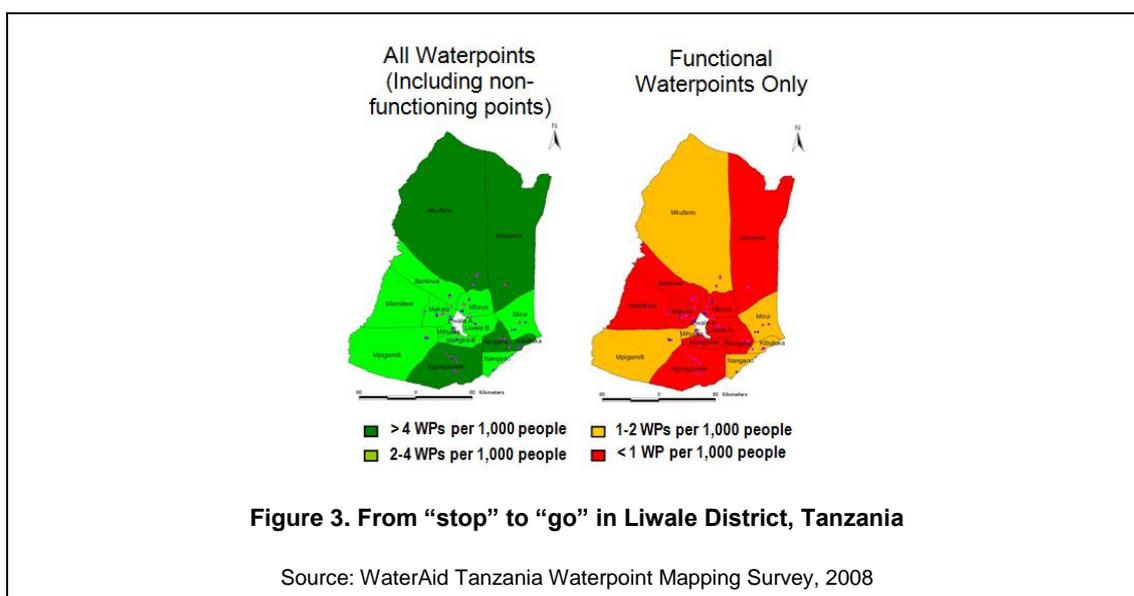


The combination of high prioritisation of water supply by rural citizens and slow progress in the sector raises questions about government responsiveness. Government has, in the past, either failed to recognise the high priority given to water supply by rural citizens or has failed to respond to it.

National government has, in recent years, taken significant steps towards addressing this issue, by increasing development funding for rural water supply under the Water Sector Development Programme (WSDP). Nationwide, funding for capital investments in rural water supply has quadrupled from TZS 19bn/- (US\$16m) in 2005/6 to TZS 93bn/- (US\$75m) budgeted for 2008/9. This is an important development, and has the potential to begin addressing past underfunding of the sector. However, there are also several reasons to question whether this increase will deliver real improvements in access to water supply. Problems in rural water supply extend well beyond under-prioritisation.

Sustainability is one such challenge: Waterpoint Mapping (WPM) surveys conducted by WaterAid in 33 districts of Tanzania between 2005 and 2008 found that only 54% of rural waterpoints are functioning (WaterAid Tanzania 2009). This represents over 7,000 non-functioning waterpoints in these districts alone. Figure 3 shows how this sustainability problem translates into coverage: the traffic light colour-scheme turns from green (“go”) to red (“stop”) as coverage drops when non-functional waterpoints are excluded. Assuming similar functionality rates nationwide would mean that around 28,000 waterpoints are currently not functioning. Raising the functionality rate for existing waterpoints to 70% would result in water becoming available to 2.5 million people who currently lack access (assuming 250 people per waterpoint, on average).

Equity is another: analysis of the same WaterAid data has also revealed serious inequities in access to water between wards within a district (Taylor, 2008) (TAWASANET 2009). This inequity is manifested in terms of access both to existing services and to investment funding for new services. Put simply, some wards are much better served than others, and more of the new funding is being targeted at relatively well-served communities – see Figure 4. Until this poor targeting is addressed, millions of rural citizens will continue going without access to water supply.



A third obstacle is weak **accountability**. Significant responsibilities have been devolved to Local Government Authorities (LGAs) to oversee investment in rural water supply and to support community-managed facilities to improve sustainability. However, accountability pressures on these LGAs, particularly from below, are very weak. Formal democratic procedures are undermined by the limited capacity of elected representatives and the lack of realistic choice, there is little by way of local media, and civil society is generally weak and rarely truly represents citizens’ interests. This leaves an accountability deficit under which mismanagement, poor performance and even corruption can thrive.

Though the causes of poor sustainability and inequity are multiple, the accountability deficit undoubtedly makes a major contribution. In the case of sustainability, there is little or no pressure on local government officials to ensure that breakdowns in water supply infrastructure are repaired quickly.

Accountability pressures are much greater in the case of planning new investments, which two WaterAid studies found to be highly politicised (Taylor 2009) (Tam 2009). Communities with strong backing from MPs or influential councillors were able to influence the planning process to their advantage, while communities without such support struggle to attract investment. However, even here accountability is a critical issue – some communities have power and influence while others do not. Local officials are accountable to some but not to others and that results in the very unequal distribution of both existing services and new investments. Some communities are simply not able to make their voice heard – see box.

Mwakashanhala Ward, Nzega District, Tanzania

This ward of over 25,000 people had never received any water supply funding either from government, donors, NGOs or the private sector, until WaterAid started working there in 2008. The community was using a mix of dirty and distant sources for drinking water, and had regularly put water supply as their top priority for public investment through the official, bottom up planning process. They should have been top of the list when new funds became available to the local council.

But they got nothing. Why? The main reason was found to be that the ward was effectively invisible to decision makers - remote and inaccessible, well off any main road, with nobody advocating and protecting their interests at the district centre. In short, they lacked political influence.

Source: Tawasanet, 2009

MajiMatone programme methodology

As outlined above, Daraja argues that water supply challenges are political rather than either technical or financial. As a result, they require a political rather than technical solution. Engineers have a role, but unblocking bureaucratic and political obstacles to effective planning and management can result in services delivered in a more cost effective and sustainable manner than new technology. This programme is therefore designed to mobilise citizens to put pressure on local government to solve specific functionality and equity problems in specific cases.

The programme is constructed around a basic framework for promoting action by citizens: popularising information, an SMS-based citizens' feedback mechanism, and media partnerships for accountability. These components have been given a single brand identity – MajiMatone – for easy public recognition.

Popularising information

The programme makes information on rural water supply as easy as possible for citizens to access and understand. This includes data from waterpoint mapping surveys on the state of water supply services as well as relevant information on national policies and finance for the sector. In all materials, the emphasis is on translating policy information and data on the state of services into simple language and highly-visual formats. For print materials, extensive use is made of cartoon-style drawings, maps and league tables that aim to present complex information in a manner that is accessible to low-literacy readers. Radio is also used widely, including documentary segments, short (typically 1 minute) spots, interviews and live discussion programme formats.

SMS-based feedback mechanism

A simple mechanism has been developed for citizens to use their mobile phones to give feedback on the state of rural water supply. This was developed initially to use FrontlineSMS and more recently shifted to the private sector aggregator Push! Has a waterpoint broken down? Has that community been asking for funds for water supply for years with no success? Has a project been left uncompleted? Information provided is forwarded to the local District Water Engineer and the local MP – thus enabling them to respond quickly – as well as to the media (see below).

Data is collected from SMSs received through this mechanism and fed back into the waterpoint database – updating maps of waterpoint functionality automatically. Further, messages forwarded to District Water Engineers are tracked to monitor actions taken by the water department in response. This tracking system is key to monitoring the programme's effectiveness.

Media partnerships

Partnerships with national and local media – radio in particular – provide a platform for public debate on rural water supply and put pressure on elected representatives and local government officials to respond. In essence, the influencing power of the media is used to amplify the voice of citizens as expressed through the SMS mechanism above. Journalists follow up an initial SMS message by calling the sender for more information and, crucially, interviewing the local District Water Engineer and/or the MP to record their

response, putting pressure on them to resolve the problem. Lack of action on the part of the water department is reported, thus publicly embarrassing the water department and the local MP. This capitalises on the media's record in Tanzania as the only institution that has been able to regularly hold government to account for poor performance and stimulate government action to address problems.

These three components harness communications channels with which citizens are already familiar – notably mobile phones and radio – and create a simple, user-friendly and relatively risk-free opportunity for rural citizens to take action to address the problems affecting them. A small action by an individual citizen is given additional weight by the many similar actions by others and amplified by the political power of the radio.

An individual citizen taking action is simply sending a text message, they are not being asked to travel anywhere, speak at a public meeting, approach their political representatives or organise a protest. This reduces the powerful obstacles of cost, culture and personal risk that can otherwise prevent citizens from speaking out or taking action.

Through the media partnerships, the programme converts many single actions by citizens into a clear change in power relations between citizens and officials. The citizens' actions provide evidence and legitimacy, to which the programme's media partners add volume. Not every message is reported in detail in the media, nor followed up with the district water engineer, but enough cases are followed up to ensure that district water engineers take all messages received seriously. There is an underlying threat that a District Water Engineer's credibility and position could be undermined by regular media attention on poor performance.

The media coverage also raises the profile of the rural water supply sector, most particularly the issues of sustainability and equity. There is already some evidence that this increased profile results in increased media coverage of rural water supply beyond the programme's formal media partners, and that district water engineers are working to solve equity and sustainability issues more quickly even where they have not received an SMS through the programme. The programme tries to promote this by publishing comparative analyses of the performance of different districts and MPs' constituencies that introduce an element of competition.

We can therefore talk about three routes through which the programme translates simple actions by citizens into concrete improvements in service delivery.

1. A citizen sends an SMS, which is followed up by the media, putting pressure on the district water department to solve the initial problem.
2. A citizen sends an SMS, received by the district water engineer who takes steps to solve the problem even without direct media follow up, aware that the media might also decide to follow up the case.
3. A district water engineer hears about a problem through a different means, and takes steps to solve the problem due to the increased public attention on sustainability and equity in rural water supply.

Finally, by demonstrating to citizens that actions they take can deliver results, there are potentially broader benefits from promoting citizens' agency. The programme is part of a wider effort across East Africa – the Twaweza programme – that aims to promote a culture of citizens taking actions to address the problems facing them.

Achievements and lessons

At the time of writing, the programme is still at an early stage, too much so to draw strong conclusions on its effectiveness, either in terms of influencing local concepts of citizenship or even the more easily measurable change in service delivery. The programme is exploring different approaches to popularising information, different SMS management systems and different models of media partnership in three districts, prior to scaling up nationwide in 2011.

However, two types of indicators of progress can be presented. First, early reactions from key stakeholders can illuminate some challenges and lessons. Second, hard data on outputs and outcomes from the three-district pilot phase will be available in May 2011 in time for inclusion at the WEDC conference itself.

Early reactions from District Water Engineers

The responses of District Water Engineers in each of the three pilot districts can highlight some of the challenges the programme faces on a day to day basis – the names of the personnel and districts have been concealed here in order to protect the project’s working relationships with these actors.

The programme represents a very different way of doing things, both within the water sector and within the Tanzanian local government system. In the water sector, dominated by engineers, there is a resistance to anything that resembles a political rather than technical solution. Challenging the primacy of technology is represented here by District A, where the district water department’s response to the programme has been to challenge the legitimacy of an NGO “stirring up dissatisfaction and dissent” rather than providing money for new services.

In the local government system, there is more acceptance of governance-related work, though the norm is for such programmes to work closely with the formal administrative systems – participatory planning, public consultations, budget monitoring, etc. – rather than to mobilise citizens and the media to exert political pressure. Challenging the primacy of administration and bureaucracy is represented here by District B, where the district water department’s response has been to argue that “government cannot work by text message”, cannot act based on information not received through proper channels.

In contrast, in District C the water department has responded very positively to the programme, recognising the value of getting information on problems with water supplies through a range of different channels, and particularly recognising the value of mobile phones as a time- and cost-saving way of receiving such information.

The objections raised in Districts A and B are interpreted by programme staff as being rooted in the recognition that the programme explicitly aims to challenge the status quo in a way that will make their work more difficult. Such resistance is a challenge for the programme to overcome – the programme depends for its success on the same officials that it aims to put under increased pressure. It aims to deliver change by changing the political incentives of these officials, which puts them in an uncomfortable position. The programme is pushing the boundaries of what are legitimate actions for both citizens and NGOs to take.

Programme outputs and outcomes

In terms of programme outputs and outcomes, a summary of achievements and lessons from the three-district pilot will be included in a later version of this paper prior to presentation at the conference. In particular, this will include the following:

1. Number of print publications produced and disseminated
2. Number of radio programmes broadcast
3. Number of SMSs received and forwarded to District Water Engineers
4. Details of actions taken by District Water Departments in response to SMSs forwarded
5. Number of waterpoints brought back to functionality as a direct or indirect result of the programme

Summary and conclusions

Summary

- Obstacles to effective delivery of rural water supply services are political at least as much as they are technical or financial.
- The Raising the Water Pressure programme takes a political approach to solving these problems, aiming to change the incentives for local government officials to improve service delivery.
- The programme uses waterpoint mapping, mobile phones and the media to promote citizen monitoring of rural water supplies and strengthen the accountability of local government to citizens.

Conclusions

- The citizens’ agency approach challenges the status quo and faces resistance from actors who are uncomfortable with changes to accountability pressures.

Further conclusions to be added following conclusion of the project’s pilot phase.

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References

- Afrobarometer (2008) see www.afrobarometer.org
- NBS (2009) *Household Budget Survey 2007*. National Bureau of Statistics, Tanzania.
- Taylor, B. (2008) *Water, more for some or some for more*. Tawasanet and WaterAid Tanzania. Accessible online at http://www.wateraid.org/documents/plugin_documents/water_more_for_some.pdf
- Tam, S. (2009) *Are citizens being heard? Local government accountability in Tanzania's rural water supply sector*. WaterAid Tanzania.
- Tawasanet (2009) *Out of sight and out of mind? Are marginalised communities being overlooked in decision making?* Tawasanet and WaterAid Tanzania. Accessible online at [http://www.maji.go.tz/modules/documents/index.php?action=downloadfile&filename=Water Equity Report 2009.pdf&directory=Reports&](http://www.maji.go.tz/modules/documents/index.php?action=downloadfile&filename=Water_Equity_Report_2009.pdf&directory=Reports&)
- WaterAid Tanzania (2009) *Management for sustainability: Practical lessons from three studies on the management of rural water supply schemes*. WaterAid Tanzania. Accessible online at http://www.wateraid.org/documents/plugin_documents/management_for_sustainability.pdf
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Contact details

Ben Taylor
c/o Daraja
PO Box 736, Njombe, Tanzania
Tel: +255 26 2782197
Email: daraja@daraja.org
www: www.daraja.org / blog.daraja.org
