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Mapping for better accountability in service delivery

Assessing WaterAid's work in mapping water supply and sanitation delivery to the poor

Key points

- By displaying complex information in easily accessible and public formats, mapping can both improve the planning and delivery of services, and increase the public accountability of service delivery.
- WaterAid's work in mapping water and sanitation is a practical example, offering lessons in ways to improve accountability through mapping.
- Mapping can therefore help in implementing new aid instruments, such as Poverty Reductions Strategies, at a local level.

Overseas Development Institute

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Improving access to water supply and sanitation (WSS) is not simply a question of providing financial resources or technical solutions. It is also about improving institutions of service provision and management, as well as better and clearer enforced legal and regulatory frameworks. In short, the challenge is as much about governance of the sector as it is about technical system design. Essential to improving governance is an understanding of what service levels are required where. In many developing countries, however, little information may be available at the local level about groundwater potential, the actual status of service delivery, and users' demand. As a result, success rates for drilling water points can be as low as 20% and the actual distribution of local service delivery may be highly inequitable.

Mapping can be useful to improve the visualisation of the spatial dimension of key development issues. It can display complex information on the local situation in a more easily accessible way than other forms of data presentation, provided data is available. Turning information into knowledge through mapping can therefore provide an important contribution to improving governance, making information on a local situation a more widely available resource. In turn, this may assist in making service delivery decisions more transparent and decision making processes more accountable to the poor. Mapping therefore holds an important potential for improving governance in the delivery of basic services to the poor.

Water professionals in Salima District, Malawi, explain the district's water point map

WaterAid has used various forms of WSS mapping in sub-Saharan Africa and Asia, with the aim of enhancing public accountability for basic service delivery – as opposed to just mapping for project implementation. This briefing paper, based on a recent assessment of WaterAid's approaches to mapping for accountability in the water sector across six countries,[1] draws on these experiences to understand better what mapping is, how it is done, and what impact it has had. It also outlines key lessons from WaterAid's mapping experiences for improving the accountability of service delivery and, based on that, suggests ways of linking mapping with wider policy processes.

What is water and sanitation mapping?

WSS mapping generally captures information in three areas. These are:

a) the availability and quality of water resources, including variation under dry season, drought,

Table 1: Inputs and outreach linked to different types of mapping

Types of maps	Methods and inputs involved	Impact on governance
Maps drawn by hand without scale (e.g. community maps)	Method: participatory appraisal Inputs are simple – e.g. chalk to draw on the floor	Potential for community empowerment
Maps drawn to scale (e.g. settlement maps showing different types of services in urban areas)	Method: surveying, non-participatory Inputs are low-cost and low-tech such as pen, paper and simple levelling instruments; alternatively through digitisation of satellite images	Levels of service delivery across (sub-) local government areas become apparent but outreach likely to remain limited to sector professionals if process is non-participatory
GIS-based maps (e.g. showing access to rural water supply across a local government)	Method: GIS-survey of water points; could be accompanied by a questionnaire or by participatory methods of data collection Inputs: Data collection and analysis are time-consuming and may require professional input.	Link to local government service delivery i.e. by displaying levels of basic service delivery across a local government; depends on levels of participation and has the potential to enhance public accountability of these services.

and extreme climate conditions (e.g. groundwater availability or levels of fluoride or arsenic);

b) access to water and sanitation services (e.g. analysing which parts of the population are underserved, or which water schemes do not function and why); and

c) demand and use of water supply and sanitation services for domestic, agricultural and productive purposes (such as irrigation, beer brewing, brick making, mining etc.).

Combining such data (and overlaying it with other data such as basic infrastructure or other services) can assist in analysing the conditions under which 'water security' can be reached, namely a situation where water is physically available in the necessary quantity and quality, where households have access to improved water supply and sanitation services and where water can be used productively to secure local livelihoods (Calow et al., 2006). Mapping can, of course, also be used to analyse the provision of water supply and sanitation in relation to other essential services such as health, education or agricultural extension. In fact, it is important to understand that the water sector cannot be treated in isolation from other sectors. A point in case is that drilling rigs can only reach communities accessible by roads, thereby requiring the integration of planning between sectors.

How is mapping done and what impact has it had?

Broadly, WaterAid and its local partners base their mapping activities on a cycle of design, data collection, data input, data analysis and feedback. Depending on the specific mapping objective and development context, they use different inputs and methods for data collection and analysis. Table 1 provides a typology of maps on an ascending scale, from community maps based on simple inputs and methods to sophisticated GIS maps requiring expensive professional and time-consuming contributions. Depending on the methods and inputs used, the impact and outreach on governance varies.

The simplest form of mapping is a **community map,** drawn by hand and not to scale. Community maps are widely used in participatory appraisals with the intention to encourage social change and to empower community members. WaterAid uses community maps, for example, in Bangladesh to discuss issues around open defecation within the community and to encourage behaviour change. In this process, community members draw maps displaying households with and without latrines, open defecation spots and drinking water sources to trace patterns of contamination (Kar, 2003). Apart from leading to the empowerment of community members, community mapping can also be linked to wider policy processes of service delivery.[2]

Maps drawn to scale require drafting skills which can be acquired easily and rely on low-cost and low-tech inputs such as pen, paper and simple levelling instruments to put spatial relations into scale. An example is an urban settlement map showing different types of services i.e. water supply and sewerage lines. In the Orangi Pilot Project (OPP), WaterAid's partner in Pakistan produced such settlement maps for all poor informal neighbourhoods in Karachi that had constructed their own primary sewerage systems. The maps document the fact that more than one million people across Karachi's informal settlements had built sewers in their lanes. This evidence gave OPP a strong argument in negotiations with government and International Financial Institutions about the future design of a city-wide sewerage system.

Most commonly used by WaterAid are **GIS-based maps,** in which information is inputted via a Global Positioning System (GPS), which calculates the exact position of points from space. A basic GIS-based WSS map such as the example of Mpwapwa district, Tanzania in Figure 1 can, for instance, display information about the spatial distribution of access to WSS services across the rural areas of a local government district. WA has used such maps since 2002 in Malawi and more recently in other East and West African countries, with the aim of increasing equity in distribution of rural water supply at sub-district levels. Mapping cases from Malawi and Ghana highlight the importance of mapping methods for achieving impact.

In Malawi, where 90% of all districts were mapped by 2005 with the support of different bilateral donors and NGOs, GIS mapping had mixed results. Only one district definitely used and updated mapping infor-

mation for the distribution of water supply services on a regular basis, while other local governments were not even aware of the information. This low uptake was partly linked to the methods used by the different development agencies. Some saw water point mapping merely as a tool to improve their own interventions and therefore did not involve local governments in the data collection and analysis. Others did but with a focus on the technical rather than the political aspects surrounding service delivery (Welle, 2005).

GIS-mapping using participatory methods to assess access and demand tends to be more time-consuming and may require professional input. In the Afram Plains district, Ghana, mapping had this wider scope. It was explicitly intended to enhance decentralised decision-making mechanisms within the district and to improve the local government's ability to fund, plan and implement WSS. This was achieved by actively involving the sub-district administrative structures and members of each community as data collectors, in the assessment of WSS access and demand.

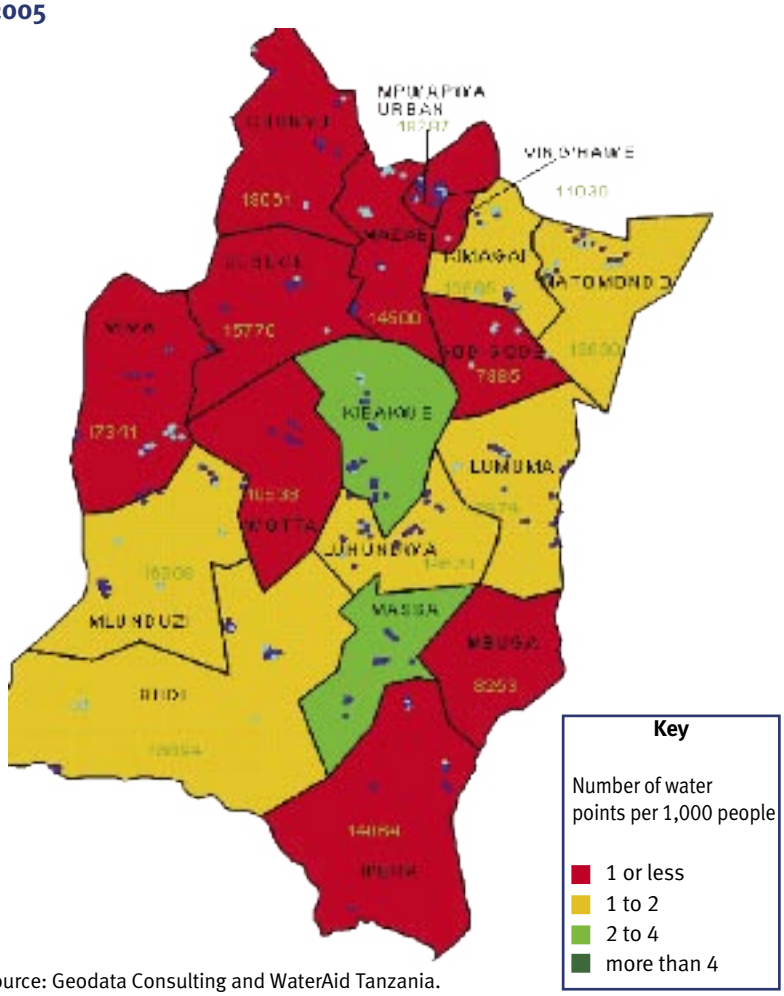
Political repercussions were most obvious in the case of the Afram Plains: based on their increased awareness about differences in service coverage, citizens started to voice their demands at district assembly meetings. The same data also led to a competition between sub-district councils to improve water supply and sanitation services for their constituencies. The district assembly, for its part, acted upon mapping results by allocating, for the first time, funds for sanitation services. The assembly also used data about coverage levels to redistribute funding for water points between sub-districts, and to request additional financial resources from the national government. Mapping results further highlighted the importance of cross-sector district-wide planning processes, i.e. the necessity to improve the road network to get drilling rigs to unserved communities.

Lessons for improving the accountability of service delivery

The above examples indicate the important role the process of mapping plays in achieving impact. In order to increase accountability of service delivery, the users of services or their representatives need to know about, be able to interpret, and be able to use maps. The following lessons from WaterAid's experiences highlight important limitations of maps and provide insights on the conditions necessary for improving accountability of service delivery through mapping.

- **Interpreting maps:** Maps were generally referred to as 'the true picture' by citizens and government staff alike. However, if interpreted wrongly, maps can also be misleading. This starts with fairly basic, yet important, design issues. For example, the key to the map showing coverage levels of functional water supply schemes in Mpwapwa District, Tanzania (Figure 1) can easily be misread if printed out in black and white. The green shade for well-served areas would appear in the same grey scale as red-shaded for least served areas. Furthermore, the map suggests that all areas in red are seriously under-served and require immediate attention. By providing very limited information, the map conceals that some of the red areas are located in hilly areas, where natural springs are common and demand for water supply services tends to be low.
- **Who draws up the map has important implications for the levels of accountability that can be achieved:** Mapping had the highest impact in the Afram Plains, Ghana, where at least one representative from each village was involved in data collection and feedback. Emphasising that higher levels of participation are more likely to achieve accountability merely states the obvious. However, this is easier said than done in an environment where human and financial resources are limited. WaterAid's experience suggests that much thought should go into designing the mapping process. Alternatively to participatory data collection, extensive feedback sessions can serve to make mapping knowledge as publicly available as possible, though this will ultimately compromise its political impact.
- **The importance of follow up:** Improving the accountability of service delivery is not ensured by providing information alone. In all cases where WaterAid successfully used mapping to improve service delivery, its staff or local partners continued to engage with the local government after the map-

Figure 1: Functional water points in Mpwapwa District, Tanzania, 2005



Source: Geodata Consulting and WaterAid Tanzania.

ping process itself had finished. In the Afram Plains District, WaterAid's partner supplied district assembly members with summary sheets highlighting key mapping results and in Salima District, Malawi, a WaterAid employee supported district council members in making use of service delivery maps over a number of years. This suggests that an active engagement (by development brokers, for example) is crucial in bringing about sustained changes in the political process surrounding WSS delivery.

- **Wider policy environment:** Even if outside actors facilitate the uptake of mapping results, impact can remain limited if the policy environment is not conducive to change. For example, in Gwer West Local Government, Nigeria, the chairman who had enthusiastically engaged in the mapping process, and subsequently committed himself to a local WSS development plan, was removed from office shortly thereafter. Such political changes, or other issues such as a high turnover of district staff, can easily undermine the sustainability of mapping results. There is therefore a need to go beyond supporting individuals and work towards institutionalising mapping within wider decentralised policy processes.

The above lessons illustrate that mapping approaches aimed at increased public accountability of basic service delivery are highly political. The example of the Afram Plains in Ghana shows that mapping can be a challenge to political decision making. Mapping potentially threatens practices that thrive in the absence of public accountability, such as distributing services based on political party affiliations or other considerations. This is why the facilitation of mapping processes by actors outside the government plays a crucial role in bringing about sustained changes in the political economy of basic service delivery to the poor. At the same time, though, mapping approaches pushed by NGOs are likely to remain externally owned at least in the short- to medium-term — with negative consequences for sustainability and a wider geographical up-take by local governments.

Towards engaging with wider policy processes

For precisely these reasons, WaterAid has found it difficult to scale up its mapping approaches and to institutionalise them as part of government-led sector monitoring processes. The solution lies in linking mapping with higher order policy processes. For this, 'mappers' need to consider the following points.

First, mapping needs to be conceptualised not as a question of providing technical information, but rather as part of an intensive, long-term engagement process that enables government buy-in over time. Mapping needs to be seen as a tool for political transformation and this requires some understanding of the politics involved in such a process. As a consequence, NGOs who engage in mapping for accountability need to have political analysis skills in addition to technical and community development expertise.

Second, in order to achieve maximum impact, mapping results need to directly feed into local government-wide planning processes. WaterAid does this in West Africa under the 'Localising the MDGs Initiative', where mapping is used as the key tool to identify the WSS gap to reach the MDGs within a given local government. However, engagement in local government planning processes also requires thinking that goes beyond the typical silos. Inter-sectoral analysis is needed to increase well-being and improve livelihoods. For example, a child's development not only depends on clean water and sanitation, but also on good nutrition and education. This means that organisations that define themselves around a single-issue such as WaterAid, need to reconceptualise their sector engagement as part of the wider development agenda.

Third, the potential of scaling up mapping for accountability is highest if it is accompanied by an active engagement process not only at local, but also at regional and national level. Linking up with performance-based monitoring and evaluation approaches emerging under Sector-wide Approaches and Poverty Reduction Strategies (PRS) processes provides an ideal entry point. Mappers could thus build on political support from reform forces in government at national and regional levels to complement their engagement with citizens. Conversely, mapping with the aim of increasing accountability can also help in the implementation of other aid instruments, such as PRS at the local level.

In other words, mapping for better accountability in service delivery requires NGOs to change their way of working away from the safe-haven of project support to an active engagement with political processes. This is in line with the latest thinking in development (including the Paris Agenda) which calls for development actors to align their interventions with government policies.

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References and Endnotes

Endnotes

1. Detailed study reports and synthesis of the lessons learned from Ghana, Malawi, Nepal, Nigeria, Pakistan and Tanzania can be found at www.odi.org.uk/wpp and at www.wateraid.org/
2. WaterAid's partners have used community maps in urban areas to draw the government's attention to the existence of informal settlements and their need for service delivery (for example, in Nepal).

Photo credit: ODI/Katharina Welle

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