

Challenges for Water Governance in Rural Water Supply: Lessons Learned from Tanzania

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ABSTRACT *This paper focuses on the identification and analysis of key issues that impact the governance of rural water services in sub-Saharan Africa. Tanzania was selected as a representative case study. The analysis was based on a combination of relevant literature review, extensive fieldwork and action research case studies, which were carried out between 2005 and 2009. A number of weaknesses that continue undermining strategies for poverty eradication were identified at different administrative levels (from local to national): low quality of water services; lack of sustainability of constructed infrastructure; difficulties for targeting the poor; and inadequate internal information systems. Some initiatives to overcome these challenges were piloted and implemented at the district level. Policy recommendations presented entail new paradigms for the provision of rural water supply: adoption of water supply as a service that is monitored and supported by the government; needs-based allocation of projects at community level; and improving guidance for local government decision making are proposed.*

Introduction

It is estimated that 880 million people do not have access to safe drinking water and almost 2.6 billion have limited access to adequate sanitation (WHO & UNICEF, 2008). Technical or physical problems are rarely the reason for this appalling situation. To a large extent, these are socially and politically induced challenges, defined by the established water governance. This concept refers to the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and to deliver water services to different levels of society (Rogers & Hall, 2003). In other words, water governance has been also defined as the system of actors, resources, mechanisms and processes which mediate society's access to water (Franks & Cleaver, 2007).

The UN Water Conference held in Mar del Plata, Argentina in 1977 proposed the period 1981–1990 as the International Water Supply and Sanitation Decade, with the aim of delivering water-related services for 100% of the world's population. Even though targets

were not achieved, water and sanitation appeared for the first time as a top priority in the development agenda. This main concern was taken up once more during the last decade. The Millennium Development Goals (MDGs) include a specific target to cut in half, by 2015, the proportion of people that lack access to water and sanitation services. Furthermore, the decade 2005–2015 was declared International Decade for Action: Water for Life, but with very limited impact due to the lack of subsequent implementation plans. Along the same line, the year 2008 was declared the International Year of Sanitation, to stress the impact of poor sanitation and lack on hygiene on health, dignity and quality of life among millions of people.

Despite these political efforts, data show that there has been only moderate progress to date, and huge inequalities appear when comparing access to water with access to sanitation, rural with urban areas, and trends within different regions (Table 1). At the international level, monitoring of access to water and sanitation is being carried out by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply and Sanitation (JMP), and this provides a rough idea about the number of people with access to improved facilities. Nevertheless, these data are not exhaustive and present significant limitations (Jiménez *et al.*, 2009). In general, the paucity of consistent water sector related data is another key constraint that is impeding effective progress (Biswas & Seetharam, 2008).

In recent years there has been a significant change in how donors deliver aid. An effort is being made to improve aid effectiveness, as expressed in the Rome Declaration on Aid Harmonization in February 2003 and the Paris Declaration on Aid Effectiveness in March 2005. Improvements in aid effectiveness are based on the principles of ownership, alignment, harmonization, results-oriented management and mutual accountability. In practical terms, at least 85% of aid flows will be reported in government budgets and use public financial management systems. This ensures that most aid is channelled through sectorial or general budget support, which considerably increases ministries' budgets (Jiménez & Pérez-Foguet, 2009a).

Inside the sector, different positions have emerged. The Dublin Principles, which recognized water "as an economic good" (ICWE, 1992) gave support to the privatization of services. In contrast, a strong movement has defended the role of public institutions in the provision of basic social services (Hall & Lobina, 2004), and the wider principle of considering water as a common good (Barlow, 2009). However, the consideration of water as a human right contained in General Comment 15 of the Committee on Economic, Social and Cultural Rights of 2002 is a key milestone that enforces clear obligations on governments to protect, respect, and fulfil this right (United Nations, 2002). This right has not been accepted by many countries, since they are unsure of the legal implications of it (Biswas, 2007). Recently, the United Nations appointed an independent expert on human

Table 1. Access to water and sanitation and progress towards MDGs

Parameters	Water supply	Sanitation
World coverage	87%	62%
World rural coverage	78%	45%
World urban coverage	96%	79%
Estimated year for attainment of MDGs (world)	2016	2022
Estimated year for attainment of MDGs in Sub-Saharan Africa	2040	2076

Source: (UNDP, 2006)

rights obligations related to access to safe drinking water and sanitation to shed light on the matter.

The Situation in Rural Areas

Although the international private sector has focused its attention over the past decade on the urban water supply subsector, the Dublin Principles also address rural areas. They have been translated into what is known as the demand-response approach (DRA), which received considerable support during the 1990s (Katz & Sara, 1997). The underlying idea is that supply-led approaches are financially unsustainable and ultimately fail the poor. In contrast, a focus on water as an economic good and on the costs related to its supply lead to financial sustainability that results in improved services. Thus, users are brought into the process of selecting, implementing and ultimately financing the long-term delivery of water services. The main aspects of the DRA are summarized in Table 2. While this approach leads to greater participation of end-users in the design and management of their services, it also makes them liable for the responsibilities and costs related to full operation and maintenance (O&M). This approach has been widely accepted. In most cases, responsibility for the demand and management of rural supplies has been shifted to communities, and their support has been delegated to different local government agencies in many African countries (Politica Nacional de Aguas, 1995; Ministry of Water Resources, 1999; Directorate of Water Development, 1999; Ministry of Water and Livestock Development, 2002; Water Resources Commission, 2008).

However, the sustainability of rural water supply programmes remains a challenge. Current estimations for Sub-Saharan Africa suggest that only two out of three water points (WPs) in the continent's rural areas are functional at any given time. In Tanzania, a recent study estimates that 46% of public improved water points in rural areas do not work (Taylor, 2009a).

This paper analyzes how the general context in the sector affects the governance of rural water supply in Tanzania. In the next section, we describe a brief history of the development of water services in this country. This is followed by the methodology of this study. The Results section highlights the key challenges that the rural sector is facing, as well as the initiatives undertaken to overcome them. Policy implications are presented before the conclusions.

Water Services Development in Tanzania

Tanzania is a good example of the political processes that govern water service delivery models, due to its extensive experience in the development of rural water supplies. Such supplies were first established at the end of the 1940s, before independence, with 75%

Table 2. Main principles of the demand-response approach

Communities must initiate the process of making the demand, normally with initial financial contribution
Communities must contribute a certain percentage of capital costs towards their project (sometimes paid partially by in-kind labour) and 100% of O&M costs
Communities must participate in all decision-making steps
Communities own the system and are responsible for its management

funding from the national government and 25% from local authorities. Operation and maintenance costs were borne by local authorities by means of water rates and taxes.

In 1965, shortly after independence, the government decided that 100% of the funding for rural water supplies would be contributed by them, and that water at public domestic points would be free. However, maintenance was still the responsibility of local government. As local authorities were not effectively maintaining water points, in 1969 the government decided that it would also take on the responsibility for maintenance. Moreover, at the end of 1970, the ruling party, Tanganyika African National Union (TANU), created an ambitious plan which stated that by “the end of 1990, the people of rural Tanzania should have year round supplies of safe and wholesome water in sufficient quantities within a reasonable reach” (Tanzania Society, 1975). Lack of sustainability was already significant during the mid-1970s despite government promises.

As early as 1981, president Nyerere stated that the users, rather than the government, should look after the facilities, but this did not become policy until much later. The promises of rapid coverage were also fostered by the International Drinking Water Supply and Sanitation Decade (1981–1990). Donors, who provided 63% of the funds for the rural water sector in the country by 1980, widely supported this initiative and switched from programme to project aid, which mainly involved in-depth regional planning and support for further investment for implementation. In general terms, plans were not implemented and sustainability was very low (Therkildsen, 1988). The Decade began with a rural coverage of 46%, after government data, and ended with 39% coverage, after international estimations (WHO & UNICEF, 2009).

A new water policy was launched in 1991. A new target was established: to provide clean and safe water to the population within 400 meters of their households by the year 2002. This target was not achieved, since the rural coverage in 2000 was estimated at 44% (WHO & UNICEF, 2009). The main shortfall in the National Water Policy of 1991 was identified in the implementation strategies, which emphasized that the central government is the sole investor, implementer and manager of projects in rural and urban areas, while part of the O&M costs responsibility was shifted to the end-users.

In 2002, at the end of the target period, another water policy was launched, which is still valid today (Ministry of Water and Livestock, 2002). This policy was recently completed by the publication of the related act (Ministry of Water and Irrigation, 2009). In this act, water is recognized as a human right in the preamble, but no further implications of this statement are found throughout the document; the central government plays the role of coordinator and facilitator in the water sector, and the district level holds the main responsibilities for implementation. The approach to service delivery is the aforementioned demand-response approach, whereby: communities should demand, own, and maintain their water services and participate in their design; full operation and maintenance costs are their responsibility; and they have to provide part of the capital costs through cash and kind.

The main policy implementation instrument is the Water Sector Development Program, whose rural component is the Rural Water Supply and Sanitation Program (RWSSP). The RWSSP, which was officially launched in 2006, establishes targets for the percentage of the population in rural areas who shall have sustainable and equitable access to safe water: (1) 65% by 2010 (goal set by the National Strategy for Growth and Reduction of Poverty, MKUKUTA); (2) at least 74% by mid-2015 (MDGs); and (3) 90% by 2025. To meet these targets, water supply coverage must be extended to an additional 33.8 million people during the period 2005–2025. The estimated cost for the rural component

(excluding small towns) is US\$1,606 million, with US\$1,465 million for capital investment, US\$51 million for management and operational support to districts, and US\$17 million for institutional strengthening and development (Ministry of Water and Irrigation, 2006).

Hence, Tanzania is a state that somehow recognizes the right to water, has decentralized competences, and takes a fully demand-responsive approach to service delivery. The current reported level of rural coverage is 57.1%, compared to the 65% targeted for 2010. The main challenges that compromise the success of the RWSSP are described hereunder, after an explanation of the methodology.

Methodology

The methodology used in this study combines quantitative data obtained from Water Point Mapping studies with qualitative data obtained through fieldwork and interviews, as well as an action research case study, which was carried out between 2006 and 2009 in one rural district, and involved some initiatives to overcome challenges.

Water Point Mapping (WPM) campaigns were undertaken in two districts, Kigoma Rural and Same, and covered 2509 water points and around 840,000 people. The campaigns were undertaken in 2006 and 2008 respectively. WPM can be defined as “an exercise whereby the geographical positions of all improved WPs in an area are gathered in addition to management, technical, and demographical [*sic*] information. This information is collected using GPS and a questionnaire located at each WP. The data are entered into a geographical information system and then correlated with available demographic, administrative, and physical data. The information is displayed using digital maps” (Welle, 2005). These studies covered the standard water point mapping information plus basic quality testing and seasonality assessment (Jiménez & Pérez-Foguet, 2008, 2009b), named as Enhanced Water Point Mapping.

Additionally, this information was completed with an analysis of the information obtained from other WPM studies undertaken between 2005 and 2006 that covered three regions and 15 districts of central Tanzania (Jiménez & Pérez-Foguet, 2009c). These studies involved 5921 water points and around 15% of the country’s total rural population in 2005.

Qualitative information about the RWSSP at the national level was obtained through interviews with Ministry of Water officials, along with an extensive review of the unpublished and published documents from this ministry and the office of the prime minister. The analysis of the main challenges at the decentralized level was based on fieldwork conducted in four rural districts (Kigoma rural, Same, Iramba and Nzega) between July 2008 and August 2009. District councils were visited and interviews were held, particularly with district water engineers (DWEs) and district planning officers (DPLOs). For the purpose of understanding the challenges at lower levels of government, four wards were selected in two districts (Same and Nzega). The aim was to include one ward with a historically low investment in water supply and one with a historically high investment in each of the districts. Interviews and group discussions were held with elected political representatives at ward, village and sub-village levels, as well as with government officers at village and ward levels. The village plans from the selected wards were examined and discussed with government officials and local leaders.

The action research case study was carried out in Same District between 2006 and 2009 through collaboration between Same District Council and Ingeniería Sin Fronteras,

a Spanish non-governmental organization (NGO). An initial WPM study was conducted at the end of 2006 as a baseline on the state of water services in Same District. The application of the tool was monitored with a focus on the coordination of stakeholders and decision-making regarding the water funds allocation of the District Government. In July 2009, a basic WPM update was carried out to assess its evolution from 2007 to 2009. This was used to test a pilot initiative on how to update the WPM and to link the available information with the planning. This process led to the definition of initiatives to overcome the challenges, as described in Section 5.

Challenges for Water Governance in Rural Areas

Low Quality of Delivered Service

The aim of the Rural Water Supply and Sanitation Program (RWSSP) is to provide safe and sustainable water services to the rural population. However, an in-depth analysis of current services shows that there are major threats to this target. The quality of water delivered, and the reliability of the supply were analyzed through the Enhanced Water Point Mapping methodology, in two districts (Jiménez & Pérez-Foguet, 2009b).

The quality of water delivered was not satisfactory, especially due to coliforms. When the information was disaggregated by category, about 40% of the ground water points were found to be polluted, together with 30% of gravity-fed systems. Seasonality also affected the services in up to 30% of cases, depending on the category and geographical location of the water point. When we assimilated the results to their corresponding networks, coverage was reduced by one quarter when the presence of coliforms was considered, and by 20–33% with seasonality. When both quality and seasonality were combined, coverage figures dropped by a factor of 0.57 and 0.55 for the districts, compared to the coverage figures that reflect functionality alone.

The study shows that more than 50% of functional improved water points could be expected to have either quality or seasonality problems, which is in agreement with similar studies in the literature. Unpublished results from the Rapid Assessment Quality Water pilot test in Ethiopia were similar. Of the 290 boreholes tested, 23.1% had more than 10 CFU/100 ml, compared to 34.2% of the 155 protected dug wells and 46.7% of the 319 protected springs.

There are various explanations for this fact. However, in the case studied, many of them are related to poor management of services rather than infrastructure failure or natural sources of pollution. As regards quality, contamination at source was predominantly due to bad management of water catchment. In a few cases, water was naturally polluted (salinity or fluoride) since this aspect is increasingly controlled when new water points are created. Seasonality was related to depletion and bad use of sources due to (1) inappropriate land uses around the source, (2) poor allocation to different uses of water abstracted from the same source, and (3) uncontrolled connections to the network, which produce shortages in the dry season.

This situation clashes with the current plans at the national level. On the one hand, quality monitoring and risk assessments are not part of national information routines. Moreover, the lack of capacity at the community level to deal with the mix of environmental and social aspects that affect the quality and seasonality of the water consumed, contrasts with the scant attention paid to conflicts about water use, capacity building and post-project support foreseen in the RWSSP.

Low Sustainability

The RWSSP emphasizes the development of new schemes. It allocates less than 6% of investments for rehabilitation and less than 4% for district management support and capacity building. This allocation of resources is challenged by the study of current water point functionality-time relationships we made for a water point mapping survey conducted in three regions of Tanzania that account for 15% of the country's total rural population (Jiménez & Pérez-Foguet, 2009c). In this study, functionality was disaggregated by technology category and administrative structure, and appropriate scales of analysis of the various relationships were justified. The functionality by category showed that only 45.3% of hand pumps, 48.6% of gravity-fed systems and 44.4% of motorized systems were functional at the time of the survey. Some WP categories were found to be quite sustainable in some areas and to fail completely in others. Nevertheless, the analysis showed a statistically significant relationship between functionality and category of WP at all administrative levels, national, regional and, to a lesser extent, district ones.

Decreasing functionality rates over time were found for all WP categories. If we analyze the tendencies showed by the lineal regression we find that hand pumps show the least favourable functionality-time function, starting from 61% in the first five years to 8% in the 30-year period. Motorized systems decrease from 79% to 17% in the same period, and gravity fed systems, from 67% to 19%, working better in the long run than any other category of water point. In all categories, only between 35% and 47% of water points are expected to be working 15 years after installation, and only between 57% and 72% of them continued working after five years. The latest data about the implementation of the pilot phase of the RWSSP (2002–2008) confirm the conclusions of this analysis (World Bank, 2008). Out of 197 water points examined in 19 sampled systems that were implemented in 6 districts during the last five years, 130 (66%) were functional at the time of the evaluation, with a 75% functionality rate for gravity and 56% for hand pumps. These values show that the functionality-time tendency has not changed with the current implementation model.

RWSSP predictions estimated that 48% of people will be served by hand pumps, 25% will be served by motorized systems and 21% will be served by gravity-flow networks. Hence, the level of service provided and the technology proposed for the rural areas need to be reviewed, as the most predominant technology, the hand pump, is the least sustainable over time. It is true that the community management requirements are lower than any other: this in turn might have led to the scant attention paid to building organizational capacities, which remain critical for maintenance. Moreover, it was expected that people would prefer the low cost-low service option. However, this is not the case, as the evaluation of the first phase of the RWSSP shows (World Bank, 2008).

Sustainability is threatened by the limitations of community management of funds, the difficult relationship between water user entities and elected village representatives, the low professionalism in the management of services (Giné & Pérez-Foguet, 2008), and the very limited role that decentralized government plays with regard to monitoring, regulation and technical support, among other factors. The policy and the RWSSP are vague in defining the setups that are possible at the community level to manage the service effectively. The main responsibility is given to the community, but much greater support needs to be provided to attain effective sustainable service management models.

Lack of Pro-poor Targeting

The allocation of funds at the ministry level under RWSSP is a fairly transparent formula-based system. However, a thorough study reveals some drawbacks. First, it is too focused on the development of new infrastructures (91.2% of budget of the programme) and low priority is given to capacity building and post-project support. In fact, recurrent costs are not included in the budget of the programme, and depend on transfers from the Ministry of Local Government (PMO-RALG). Second, it is focused on efficiency rather than on regional equity, despite the initial goal to raise coverage in all districts to over 80% by 2025. The main driver of allocations in practical terms is the total number of people with no water service in a district, with a minor influence of technology. In fact, the allocation data analyzed versus the population show that there is a good relationship between the overall number of people with no water service in a district and the money allocated ($R^2 = 0.95$), but not between the money allocated and the coverage rate by district ($R^2 = 0.21$). Third, differences between formula predictions and real allocations are important. Some regions get significantly more funds than the water formula would allow for, while in other regions the opposite holds true (World Bank, 2009).

Nevertheless, the greatest challenges for targeting the poor are found at district level. District councils allocate projects based on a combination of need, demands (expressed in cash) and political influence. This tends to help bigger villages that are better connected and more influential. Thus, existing inequalities are perpetuated. This situation is not counterbalanced by regular awareness creation and facilitation in villages that are less organized or have worse connections. The dynamics of these districts are unlikely to change in the short term from the bottom level. Villages and councillors are not sufficiently aware of programmes other than LGG, and only selected villages are being supported by the RWSSP to complete their applications and initial contributions. In addition, villagers are ill-informed of application procedures and decision-making processes.

This mixture of policy incoherencies, technical shortcomings and political influence determines that only a small proportion of funds reach the under-served areas. A close look at four districts showed that, apart from the above mentioned facts, only 50% of the wards that were targeted in the first phase of RWSSP in these districts were below the corresponding district average of access. This is a common problem, as experience has shown that when governance is decentralized, local elite are frequently even less likely than the national elite to target government resources to the poor (Blair, 2000). Simultaneously, people's capacity to participate and hold local government accountable is reduced, especially for the poorest (Cleaver, 2005).

Inadequate Information Systems

The failure to target the poor is also due to the lack of suitable and reliable information systems that show the status of water services across the region. This is a general concern for the sector, as demonstrated by the status of development of Sector Management Information Systems in the Sub-Saharan region (Water and Sanitation Program, 2007).

The case of Tanzania reflects common challenges. Data published by the ministry, which are based on the coverage reported by districts, are not always reliable. District water engineers recognize that data are not based on an extensive review of the situation.

Inter-annual variability is also very high. For instance, from 2007 to 2008, 30 districts reported a coverage variation of at least 10% on the previous year. Of these, 16 reported a variation of over 20%, and seven reported one of over 30% (Ministry of Water and Irrigation, 2008).

This aspect had been identified before, and it has been tackled by promoting Water Point Mapping, which has been supported by international NGOs since 2005. So far, 51 districts out of 132 have been mapped, and the government might extend this scheme to the entire country. This exercise has shown a much more reliable picture of the status of water inside the districts, and has highlighted major differences between official and onsite data, as well as significant internal inequalities.

Despite the use of WPM as an information tool, its potential remains underexploited. A field study was carried out to assess the use of WPM in four districts in which it had been in place since 2005 (Taylor, 2009b). The results showed that the incidence of WPM for better planning was still low, despite the acknowledgment of its potential usefulness. The main constraints were related to updating the system and how it can be effectively included in the planning process.

Initiatives Implemented

Some initiatives have been tested and proposed to overcome the main challenges detected. These are described below.

Promotion of Enhanced Water Point Mapping as an Information Tool

As it has been said, lack of reliable information is at the heart of some of the main problems of the sector. In this sense, Water Point Mapping (WPM) was created to overcome some of these difficulties and has been widely used in the country, but is facing the challenges for its updating as well as for the effective use of information. Two initiatives were tested.

- Implementation of a yearly basic update of WPM (Jiménez & Pérez-Foguet, 2010a). Currently, a typical district council does not have enough resources or capacity to repeat a whole WPM campaign every year. Consequently, a simplified procedure was tested in Same District which reduced costs and the need of highly qualified staff. Instead of visiting each water point, information was collected at the village level through meetings with local leaders. Thus, information on all water points that had already been recorded in the initial WPM database was updated and completed with a list of new WP. This basic update of WPM gathers information about water points summarized by village. The position of new water points is not recorded with GPS, but the name and location of up to sub-village level is available, and maps can be produced. This basic update is not intended to substitute a whole campaign to be done every four to five years, but helps to develop a reliable information system at the local level in the following aspects: (1) it gives an updating option more adapted to the current resources and capacities of the districts; (2) it involves district officials and local leaders in the collection of information; (3) it provides reliable information that can be used for planning at district level, as described hereinafter.

- Inclusion of basic quality testing and seasonality information in the WPM campaign. The Enhanced Water Point Mapping (EWPM) was piloted in two Districts (Jiménez & Pérez Foguet, 2009b), and as described above, unmasked important problems related both to quality and seasonality of the services. This facilitates the adoption of some corrective activities from the district level, as described hereinafter.

Link of Water Point Mapping Results to District Planning

WPM offers great potential in terms of analysis and planning, but it remains underexploited to date. For the pilot action implemented together with the Same District Council, WPM was included in a wider framework for improving planning, which included three main actions: (1) priorities based on objective data were defined using the results of the WPM update; (2) demand creation at community level has to be included in the local government authority's (LGA's) activities, to prevent funds from being allocated only to the most prepared and organized villages; and (3) information systems had to be regularly updated to feed the process, as described above. The aim of the process is that the LGAs focus on supporting underserved communities to cope with policy requirements, and finally provide services where they are most needed. Priorities were defined on the basis of need, with regional equity as the key driver, in order to achieve universal coverage. For this purpose, some basic indices were defined using the information obtained from WPM (Jiménez & Pérez-Foguet, 2010b). Planned actions included an increase of coverage (through new water points and rehabilitation), an increase of equity at the village level (by targeting sub-villages with no access), improvement in the quality of water delivered and the implementation of environmental actions (particularly those related to source protection). Moreover, basic information on service management at the village level helped to identify which villages must be more urgently supported to establish suitable management systems at the community level. The output of the process was a district-owned planning based on need, rather than demand, as the main criterion (Same District Council, 2009a), and included priorities for a wider range of activities, as defined above.

Establishment of District Regular Management Support Services

As described, low sustainability remains the greatest challenge in the Tanzanian rural water supply. This is a wide and complex issue that has various causes. Nevertheless, one of the main weaknesses is the absence of an institutional arrangement at the district level to provide long-term support to community-managed water services. Community rural supplies need to be monitored and supported regularly by the appropriate level of government, the LGA in the Tanzanian case. However, some challenges will need to be overcome: (1) the funds for recurrent costs at the LGA level remain very low, which makes it difficult to effectively support O&M at community level; (2) the different aspects that threaten sustainability are above the capabilities of Water Departments alone; (3) LGAs lack human resources in many areas.

A proposal was developed together with Same District Council, named as the District Water and Sanitation Unit Support (DWUS). The DWUS has been designed as a multisectoral team comprised of members from nine departments: Water, Health,

Education, Community Development, Finance, Planning, Forestry, Land, and Legal issues, in order to assist communities in the different challenges that may arise. The expected outcome is an increase in the sustainability rates of the rural water and sanitation services, through the establishment, legalization and support of water user entities (Same District Council, 2009b). The operational rules of DWUS have been developed taking into account the aforementioned current limitations of the LGAs.

Policy Implications

This research explores possibilities to improve water-related services delivery in rural areas. Achieved results pointed out in previous section support the following policy recommendations.

Sector information systems are more useful when (1) data collection involves end users and promotes a thorough description of reality on the ground (through an adequate mix of survey instruments), (2) they produce outputs that are not only valuable for reporting to higher levels of government, but can also be used for decision making at intermediate levels, (3) the information is linked to territory, and thus it might be displayed via digital maps to facilitate interpretation and analysis; (4) updating can be done in the short term relying on available capacities at local level.

The provision of improved water points is not enough to ensure safe drinking water quality. Thus, the inclusion of basic quality parameters and seasonality monitoring in the rural supplies is required to unmask important shortcomings in service provision, which might have undesirable effects on the well being of millions of rural users. Moreover, the expected costs for considering these aspects are relatively low, while costs for standard mapping range from 12–15 US\$/WP, they increase to 20 US\$/WP when quality is included. In Tanzania, if enhanced water point mapping is applied to the entire country, the total cost would be roughly US\$2 million compared to US\$950 million of foreseen investment throughout the programme for the period 2008–2012.

The design of national water plans should include the necessary institutional arrangements and funds to provide LGAs with adequate resources and capacities to supervise works and ensure post-project support to community water supplies. As a current constraint, this is particularly grave since it does not represent an important amount of funds when compared with investment for infrastructure, but with enormous consequences in the sustainability of services.

The national plans have to ensure an adequate channelling of funds from the ministry level to the end users. In this aspect, increased decentralization of responsibilities can prevent funds from reaching the neediest, in those contexts with weak democratic processes at the local level. Hence some measures are proposed. First, equity in service provision at the local level should become an explicit target to be monitored from central governments. National directives should be in place to guarantee a minimum level of service per ward and village, as is done for other social services. Second, national plans should include in periodic evaluations some performance indicators related to equity and functionality rates at the decentralized level, with incentives to well performing districts. Third, transparent mechanisms need to be developed to link monitoring information with decision making at the local level.

National policies often state that community rural services have to be allocated through a demand-response approach. An adequate interpretation of 'demand' is far

from easy. This has frequently been measured in terms of the amount in cash that a community is able to collect, which facilitates the influence of local political powers. Needs-based allocation of resources should be a must in rural water policies. Demand creation and facilitation should be effectively included in the project cycle, but not as a pre-requisite.

Conclusions

The aim of this work was to study some of the key governance issues that affect the water sector in developing countries, especially in the rural areas of Sub-Saharan Africa.

Tanzania was selected as case study. A comprehensive analysis of main challenges was undertaken, and some initiatives were piloted to improve policy making towards better service delivery. The research, which addressed levels from national to village, allowed some conclusions to be drawn.

The rural sector is dominated by important investment plans to increase access within more global strategies for poverty eradication. These usually occur together with a decentralization process. Service delivery in the rural context relies on a demand-response approach at community level.

The overall performance is constrained by important weaknesses. Low quality and sustainability of the service, lack of pro-poor targeting, and inadequate information systems were found to be the most significant challenges. Important changes in policy orientation need to be addressed to improve the performance of sectors. These involve the shift of some paradigms.

First, national policies and plans need to change from an infrastructure to a service approach. This implies that adequate resources should be envisaged for the operation and management of services in the medium term. Allocation of responsibilities for the management of the services has to be redefined. A greater balance between the participation of end users in the management of services and an adequate support and control from government institutions needs to be achieved. In this sense, the role of local governments has to be strengthened. They should effectively monitor and regulate service and provide technical support. Different possible setups (management by the community itself, outsourcing of some tasks to private service providers, total warranty schemes, and so on, have to be developed at the community level to enable management of the service.

Second, and in terms of equity, project allocation decisions cannot be based on the demand of communities. Plans should be based on real needs, so that unorganized, poor and small communities are not side-stepped from service delivery, and universal coverage can be achieved.

Third, decentralization is not beneficial for citizens *per se*. It is both a risk and an opportunity. Clearer orientations and incentives from central governments could be useful in the short term, together with the development of procedures to link available information to political decisions. Meanwhile, accountability to citizens and transparency has to be dramatically increased so that decentralization leads to better performance. On the other hand, the initiatives implemented in this research show that improvements can be easily tested and adopted at the decentralized level, and that it is worth supporting these institutions.

Finally, the establishment of reliable and inclusive information routines for sectors is the key ingredient for many of these changes to be possible, as well as to anticipate future challenges. Objective, reliable and detailed information about water access is essential.

Tools based on GIS, like the Water Point Mapping, have great potential. But above all, the will of having reliable monitoring systems in the water sector should become a real priority for international donors and governments.

Acknowledgements

The authors would like to thank Ingeniería Sin Fronteras-ApD (ISF-ApD), the Civil Engineering School and the Centre for Cooperation and Development (CCD) of the Universitat Politècnica de Catalunya (UPC) for supporting this research. The authors would like to express as well their sincere gratitude to Same District Council for their enthusiastic collaboration during these years.

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