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When good practices by water committees are not relevant: Sustainability of small water infrastructures in semi-arid mozambique

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ABSTRACT

This paper explores the contradiction between the need for large scale interventions in rural water supplies and the need for flexibility when providing support for community institutions, by investigating the implementation of the Mozambique - National Rural Water Supply and Sanitation Program in a semi-arid district of the Limpopo Basin. Our results showed that coordinated leadership by key committee members, and the level of village governance was more important for borehole sustainability than the normative functioning of the committee. In a context in which the centrality of leadership prevails over collective action the sustainability of rural water infrastructure derives from the ability of leaders to motivate the community to provide supplementary funding. This, in turn, depends on the added value to the community of the water points and on village politics. Any interventions that increased community conflicts, for example because of lack of transparency or unequitable access to the benefit of the intervention, weakened the coordination and the collective action capacity of the community and hence the sustainability of the infrastructures even if the intervention was not directly related to water access. These results stress the importance of the project/program implementation pathway.

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1. Introduction

The perceived failure of governments to implement and sustainably manage rural water supplies led to community based management (CBM), which now prevails in most developing countries (Schouten and Moriarty, 2003). CBM has been promoted not only to improve the efficiency and sustainability of water infrastructure, but also to empower marginalized groups such as women and/or the poor (Cleaver and Toner, 2006). The sustainability of water supply infrastructure, defined as the “continued, satisfactory functioning and effective use of the infrastructure” (UNICEF, 2010), has long been one of the main challenges facing rural water supply interventions in developing countries. Community based management, with its basic principles of participation, control over decision-making, ownership and cost sharing, is now considered as central to long-term operation and maintenance (Lockwood, 2004). Early community involvement in the design and construction of water points (WPs) also facilitates community

ownership and proper functioning of the infrastructure (Batchelor et al., 2000).

At national level, the CBM approach has been often combined with the demand responsive approach (DRA) championed by the World Bank. DRA aims to ensure the infrastructure is suited to a community's needs and demand - that is, to its economic capacity and willingness to pay (Moriarty et al., 2013). Although the DRA approach made it possible to increase coverage indicators, indicators of success often masked the poor quality and non-functionality of the actual water points. The two main criticisms of the approach were first, that communities could not maintain their systems alone, and second, that the sustainability of hardware or small water infrastructure (SWI) required long term institutional support: the demand responsive approach is project-based and interventions are limited in time and space, which hampers upscaling and sector improvement (Lockwood, 2004; Smits et al., 2013). To overcome the shortcomings of DRA projects, programs are being reviewed to incorporate an approach that covers the full cycle of water service delivery from planning to operation and maintenance. The aim is to improve rural water supplies by the provision of lasting services against defined and measurable indicators (Moriarty et al., 2013). These authors emphasize the need

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to strengthen the institutions at intermediate level to increase the coordination and harmonization of the sector.

The approach selected by the Mozambique - National Rural Water Supply and Sanitation Program (NRWSSP) (PRONASAR the Portuguese acronym for *Programa Nacional de Abastecimento de Água e Saneamento Rural*) launched in 2010 is typical of this type of hybrid program. The rural water sector was reformed to shift from the traditional focus on building new facilities towards setting up institutional and management structures that can ensure and maintain long-term water supplies (Jiménez and Pérez-Foguet, 2010). Following the Paris Declaration on Aid Effectiveness (2005), a number of donors established a common fund for rural water supply and sanitation. The program has four components: (1) Support for a sustainable increase in rural water supply and sanitation coverage; (2) the development of appropriate technologies and management models for the rural water and sanitation sub-sector (RWSS); (3) Capacity-building and human resource development in the RWSS; (4) Support for decentralized planning, management, monitoring and financing of RWSS, with a focus on “*inclusive, bottom-up planning, improving the accuracy, completeness and communication of information for planning, budgeting and managing rural water and sanitation*” (MOPH/DNA, 2009). Districts were proposed as the focal point for planning, implementation, and monitoring of the program while the province was made responsible for drawing up and managing contracts with the private sector for drilling and “Participation and Community Education” (PEC in the Portuguese acronym). Although the importance of involvement of communities, capacity building and institutional development is emphasized, the program also strongly encourages the involvement of the private sector through the development of a “*clear contractual framework*” (Jiménez and Pérez-Foguet, 2010; Quin et al., 2011). The private sector is thus involved in construction (drilling firms), in the maintenance activities that are beyond community means (mechanics), the supply of spare parts (salesmen) and software activities such as support for community management institutions (NGOs and consulting firms). The difference in the contractual dimension between the community, the administration and the private sector ensures both upscaling and the large scale dissemination of the approach.

To render the complexity and diversity of social and ecological situations manageable, upscaling or large scale dissemination require standardization (Blaikie, 2006b). Bureaucratic interventions thus assume stabilized interpretations of the issues and intervention modes, and the water industry continues to be very much influenced by blueprint models of interventions (Roe, 1991; Rusca et al., 2014): the PRONASAR program, like similar programs, clearly draws upon the widely accepted ideas of support to community institutions and greater involvement of the private sector. But field assessments contradict the assumptions behind many of these standard recommendations: for example that the sustainability of water points can be ensured only by a monthly water fee (Batchelor et al., 2000). Indeed, institutional practices are shaped by social relationships and by the local and wider contexts of history, politics and the economy (Benjaminsen and Lund, 2002; Cleaver and Toner, 2006; Leach et al., 1999). Moreover the implementation and outcomes of policies are affected by negotiations between civil society and the state (Booth, 2012; Hirsch, 2006; Molle, 2009). The concepts of institutional bricolage (Cleaver, 2012) and hybridization (Booth, 2012) refer to the way institutional arrangements for collective action and natural resources management are “*borrowed or reconstructed from multiple sources i.e. from existing institutions, styles of thinking, social identities and social relationships*” (Merrey and Cook, 2012). This conceptualization challenges approaches that recommend normative and rigid “best practices” and increases the attention paid to context sensitive or “good fit” approaches (Lebel et al., 2013; Young et al., 2008).

Indeed some level of flexibility was included in the PRONASAR program, thereby highlighting the importance of appropriate technologies and local models of management of the SWI. A greater involvement of the private sector is also assumed to facilitate flexibility in the implementation of the program (Osborne, 1993; Schwartz, 2008). But there is an inherent tension between large scale dissemination of public service, the support to community institutions, and promoting greater involvement of the private sector. This paper explores this contradiction through the example of the implementation of the PRONASAR program in Mabalane district, a sparsely populated mostly agro-pastoral district located in the upper Mozambican part of the Limpopo Basin.

2. Context

Mabalane is one of the five districts in Gaza Province that was selected for the pilot stage of the PRONASAR program. The 5400 families in the district depend on three administrative units (or Administrative Posts – AP): Mabalane-Sede (42% of the population), Combumune (30%) and Ntlavene (28%). Each administrative unit is divided into localities that group villages and communities. At local level, the administration is represented by the “head of the locality” (*Chefe de Localidade*), who is appointed by the government. One head of a locality “controls” several communities. All the communities in a locality elect a 1st scale leader (*lider do primeiro escalão*) to represent them at the level of the locality. At village or community level, a 2nd scale leader (*Lider do Segundo Escalão*) is elected to represent the villages. If the leader chooses to resign (to migrate for example) or if he dies, an election can be held, but no periodic election is scheduled. Communities also have a traditional leader whose responsibilities are inherited and who is in charge of traditional ceremonies and land allocation. In the study area, he generally has the title of 3rd scale leader. Each leader has his own set of advisors. Other sets of people with responsibilities in the village include the block and sub-block chiefs—who used to be party related—and members of the community police. The Frelimo party, which has ruled the country since independence, has its own local representation and membership system.

Two thirds of the population of the district is located along the Limpopo River, which also delineates the border of the Limpopo National Park (LNP). The villages located on the left side of the river are thus part of the LNP buffer zone and subject to Park regulations for the management of fauna and flora. With 72% of its population subsisting below the poverty line, Mabalane belongs to the 4th quartile of the poorest districts of Mozambique, according to official ranking based on nutrition, food security and access to public good indicators. It is also the third most problematic district of the Gaza province in terms of the nutrition index, with a chronic level of denutrition that is above the national average (PEDD Mabalane, 2010). A train connects Mabalane to the informal capital of northern Gaza, Chókwè, located 100 km away; but in 2012, none of the 439 km of roads in the district were tarred, so access to the villages and transport are real problems for most communities, particularly for villages located in the LNP buffer zone, as there is no bridge in the district. Map 1.

There are three main sources of water in the district (1) the Limpopo river and its alluvial waters (during the dry season), which are accessible to riverine communities, (2) water stored (but not permanently) in small reservoirs, (3) groundwater characterized by a deep water table (between 50 m and 100 m) with salinity problems (FAO, 2004). Access to water thus depends on the location of the villages. Three main areas can be distinguished: (1) villages located in the right margin that have access to alluvial and river water. This zone can further be subdivided between villages located in the southern and central part of the district close to the tarred

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