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Abstract: The Government of Cameroon's lack of priority for rural water supply has motivated rural communities to harness their internal capacity and networks for self-help community water supply projects. Unlike self-help projects where the principal beneficiary is the community, the emerging paradigm of joint water supply projects between communities in rural Cameroon and large corporations, with both parties as principal beneficiaries, is examined. Our findings, based on the Mautu community and the Cameroon Development Corporation (CDC) joint project, suggest that this paradigm can be an attractive alternative for rural communities to gain access to piped water systems. However, to ensure long term performance of the rural community's distribution network, the more experienced corporate partner should negotiate a fair agreement, integrate capacity building for operation and maintenance, and include future growth and increased demand in the design of the community's network. Significant inequity during design of the supply to the two partners can lead to the dysfunction of the community system and trigger the perception of profiteering by the corporate partner resulting in subsequent vandalism. It is recommended that such joint partnerships be regulated and that local institutions working with rural communities should educate them on available support services.

Joint water supply projects in rural Cameroon: Partnership or profiteering? Lessons from the Mautu - Cameroon Development Corporation (CDC) project.

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Abstract

The Government of Cameroon’s lack of priority for rural water supply has motivated rural communities to harness their internal capacity and networks for self-help community water supply projects. Unlike self-help projects where the principal beneficiary is the community, the emerging paradigm of joint water supply projects between communities in rural Cameroon and large corporations, with both parties as principal beneficiaries, is examined. Our findings, based on the Mautu community and the Cameroon Development Corporation (CDC) joint project, suggest that this paradigm can be an attractive alternative for rural communities to gain access to piped water systems. However, to ensure long term performance of the rural community’s distribution network, the more experienced corporate partner should negotiate a fair agreement, integrate capacity building for operation and maintenance, and include future growth and increased demand in the design of the community’s network. Significant inequity during design of the supply to the two partners can lead to the dysfunction of the community system and trigger the perception of profiteering by the corporate partner resulting in subsequent vandalism. It is recommended that such joint partnerships be regulated and that local institutions working with rural communities should educate them on available support services.

Keywords: Cameroon Development Corporation (CDC), Mautu, partnership, profiteering, self-help water supply projects.

Introduction

Access to improved domestic water supply sources, especially via piped networks, is a critical challenge in developing countries and particularly in sub Saharan Africa, which accounts for over a third of the 884 million people in the world who were still without improved domestic water sources in 2008 (WHO/UNICEF 2010).

The situation in Sub-Saharan Africa becomes more daunting if the rural – urban disparity in drinking water coverage is considered. In 2008 the urban coverage rate was 92% while the rural coverage rate was only 51%. Coverage rates are increasing, with urban coverage increasing from 77% in 1990 and 86% in 2000 and rural coverage increasing from 31% in 1990 and 43% in 2000 (UNICEF/WHO, 2008). However the rural-urban disparity in coverage suggests that improved rural domestic water supply has not been a priority for the Government of Cameroon, a situation which has contributed to the growing paradigm of self-help community water supply projects in rural Cameroon.

The case of a joint water supply project between the Mautu rural community and the Cameroon Development Corporation (CDC) is explored to examine an emerging paradigm of partnership by communities in rural Cameroon to foster access to piped domestic water supply. A discussion of such cases is limited in water supply literature and considering it is a growing practice in rural Cameroon, it is important to understand it and particularly the factors that could foster long term performance in the rural communities.

The rest of the paper discusses briefly self-help community water supply projects in rural Cameroon; presents the background on Mautu and CDC, the methodology and a brief history of the project; discusses the emerging challenges and the perception of profiteering; discusses the lessons learned; and presents the conclusions and recommendations.

Self-help community water supply in rural Cameroon

Rural communities in Cameroon have historically sought opportunities to improve their drinking water supply using their internal resources and networks. This common and growing practice, known as ‘self-help community water projects’, is rich and diverse in its range of internal organizations, sources of funding, level of repairs and maintenance, and level of user fees (Page, 2003; Njoh, 2006). It reflects the desire of rural communities to be provided with improved domestic water supply systems and their determination to foster their social well-being.

Self-help community water projects are typically initiated by the community for the welfare of the community. The projects are usually managed by a locally constituted committee and are typically financed by community members based on a collective understanding to contribute both cash and manual labour during project execution (Page, 2003; Njoh, 2006). In some cases external financial support has been acquired from international NGOs, foreign diplomatic missions/governments as well as local corporations with the support of local NGOs and influential external elites - sons and daughters who have ties to the rural community but are not physically resident in the community (Page, 2003; Njoh, 2006). These external donors or partners are not usually end users of the distribution network, their partnership role is limited to that of a development assistance donor.

Unlike self-help community water projects, in which the communities are the sole beneficiaries, the Mautu-CDC joint project is an interesting case study because it was initiated by CDC (not the community) and both parties are direct beneficiaries (end users) of the project. In addition, these two parties have distinct characteristics (resources, expertise, finance and experience), which should

have been carefully considered during project planning to ensure long term performance of the system.

Background on The Cameroon Development Corporation and Mautu village

CDC is an Agro-Industrial parastatal established in 1947 and headquartered in the South West Region of Cameroon. It is the second largest employer after the state of Cameroon, with extensive plantations throughout the Region. Its main crops are rubber, palm oil, bananas, and tea. CDC operates several factories for the processing of its export products, one of which is its rubber factory located in Mile 30, a residential camp for its laborers (approximate population of 1000, Schmidt-Soltau, 2003) located about 2 km from Mautu village north-east along the Mutengene-Kumba highway.

Mautu village is predominately an agricultural community located at the foot of Mount Cameroon. It is the only village in Muyuka sub-division with a dense network of freshwater springs and streams, and a comparatively good location factor (Schmidt-Soltau, 2003). In addition to its favorable conditions for agriculture such as rich volcanic soil, its attractiveness, as evidenced by its rapid population growth, can be attributed to the presence of several infrastructural amenities (hydro-electric power, piped water supply, strong signals from a major mobile telephone service provider) and an all-season 1 km earth road linking it to the Mutengene-Kumba highway.

Mautu village has a cosmopolitan population of over 4000 inhabitants from 15 tribal (cultural/linguistic) groups (Isaac Mokoko, personal communication, 2009), with more than 98% engaged in agriculture as their principal source of livelihood. Their main cash crops are cocoa, coffee, palms, plantains, bananas, cassava, fruits and vegetables. The governance structure of the village is hierarchical and polycentric, typical of a cosmopolitan rural setting in Cameroon. The traditional Chief (by virtue of patrimony-inheritance) is the highest authority in the community. He oversees the activities of a constituted 'Village Council' and has a veto power in all matters about Mautu. The village council is a broad-based decision-making and disciplinary platform made up of representatives of the different organized cultural/linguistic groups. Composed of various sub-committees, the village council is headed by an elected chairman and a secretary who work in close collaboration with the Chief. These tribal representatives serve as principal communication channels between their respective tribes and the village council.

Methodology

This study was commissioned by the Mautu Village Council in anticipation of a call for applications for financial support to community projects from the Rumpi Participatory Project (An African Development Bank funded (project or parastatal)) for the socio-economic development of rural communities in the South West Region of Cameroon). The objective of the Mautu Village Council was to collect essential information on the increasingly low water pressure, which began to characterize the distribution network two years after the project was completed. The data was then used to prepare an application for financial support from Rumpi to improve the water supply distribution network by solving the problem of the increasingly low water pressure, increasing the number of public standpipes and extending coverage to new residential areas. The study was planned and executed by the first author under the auspices of Community Watershed Development Alliance Cameroon - a not-for-profit community based organization engaged in community education and outreach on watershed issues.

Subsequently, on consideration of the submission, Rumpi did approve 2.5 million CFA (about \$5500 USD), about 40% of the amount requested by the community. Work was scheduled to start

1 in 2011 with the hope of additional financial/material support from CDC, Muyuka Rural Council,
2 and the Member of Parliament for Muyuka/Tiko constituency which covers Mautu.
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5 Data for the study were collected in three phases using the following primary methods: personal
6 observations during field visits, semi-structured interviews and ‘Town-Hall’ meetings. There was
7 no documentation at the village level of the existing state of the project. It was widely claimed that
8 CDC never provided the village with any documentation on the project. Attempts to access CDC’s
9 archive for document review related to the project were futile.
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12 A good knowledge of the project history was gained in the first phase by conducting five key
13 informant semi-structured interviews and one group town-hall discussion. The key informants were
14 purposefully selected, using a snow-ball approach which began with the Chief, based on their
15 residency in Mautu at the time of the project and thereafter. The interviews provided information on
16 the project initiation and execution, while post project operation and management were addressed
17 during the first town-hall meeting.
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20 The second phase was devoted to a physical inspection of the water supply system accompanied by
21 five village representatives designated during the first town-hall meeting. The state of the pipes and
22 the public standpipes, the leaks, the catchment protection, the water quality threats, and the areas in
23 need of network expansion and additional standpipes were documented during the physical
24 inspection. During the last phase of data collection, 25 semi-structured interviews, and one town
25 hall meeting were conducted to gather information on the operation and maintenance of the system,
26 and the problems and the solution perceptions. Opportunistic interviews were also conducted.
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30 The town hall meetings, open to the public, were announced using the village whistle blower,
31 churches, as well as tribal and social meetings. The meetings were facilitated by a female
32 agriculture extension worker in Pidgin English which is the common language of communication in
33 the community. A total of 176 persons attended the meetings, 57% of whom were male and 43%
34 female. The meetings were dominated by young adults (70%) between the ages of 20 and 40. The
35 findings are discussed in the rest of the paper using a thick descriptive approach.
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39 **Brief history of the project**

40 This section provides the background to the project describing the project initiation, its terms of
41 reference, the execution of the project and its operation and maintenance.
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44 ***Project initiation***

45 The project was initiated in 1992 by the Cameroon Development Corporation to supply water to its
46 Mile 30 rubber factory and laborers’ camp located about 2 km from Mautu. According to the Chief
47 of Mautu, the information that CDC was in search of an adequate water supply source and their
48 willingness to provide the community with a piped water distribution network was introduced to
49 him by an extension worker attached to the Muyuka sub delegation of agriculture. The Chief’s
50 interest in the project led to several private meetings between him, his closest confidants and a
51 delegation from CDC which led to his acceptance of CDC harnessing the main spring water source
52 in Mautu and using it to supply Mile 30 (rubber factory and camp) while maintaining a supply
53 Mautu village via a new water supply distribution network with six standpipes.
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57 ***Terms of reference***

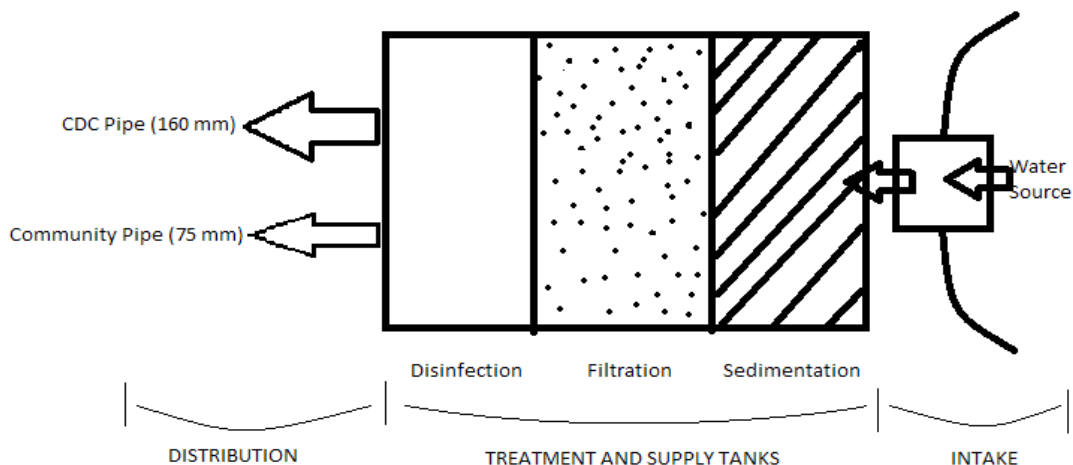
58 According to the Chief, CDC committed to provide all the materials for the village network
59 including that for the construction of the intake structure (locally called the catchment structure,
60 located where the spring comes out of the ground), the pipes for the distribution network, and the
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technical expertise required for execution of the project. The community for its part was expected to provide labour: it was agreed that men would dig and excavate the trenches for the community network (1375m) and the over 2 km main for the CDC distribution network, while women and youths would gather stones, and transport sand, cement, rods, gravel and other materials to the capture structure construction site. Although the exact amount and purpose of the funds contributed by the community was disputed, discussions during town hall meetings revealed that men contributed 1000CFA each (approx. \$2.00 USD) and women contributed 300CFA each (about \$0.60 USD).

Following the Chief's agreement with CDC, he summoned the village council to inform them of the project and the agreement reached with CDC. The community's task was then distributed among the different tribal groups, with the councilors informing their respective groups. An information session was organized for a presentation of the project by CDC, findings from the town hall meetings suggest that the project was presented to the community as 'development assistance' from CDC to the community. Participants at the town hall meetings argued that the benefits of the project to CDC were never highlighted, instead emphasis was on the expected input from the community and the provision of six public standpipes for the community.

Project execution

The project was executed over six months. The men in the community excavated the trenches during communal labor days (once a week over 3 months, with each adult contributing on average 3 days work). CDC technicians supervised the work. CDC provided two weeks of training on cleaning and maintenance of taps to the chairman of the water management committee. The water supply system is a simplified gravity fed system with a rectangular concrete intake structure made up of three compartments; sedimentation, sand filtration and disinfection. A schematic view and a photograph of the intake structure are shown in Figures 1 a) and b).



a) Schematic view of the intake structure (not to scale)

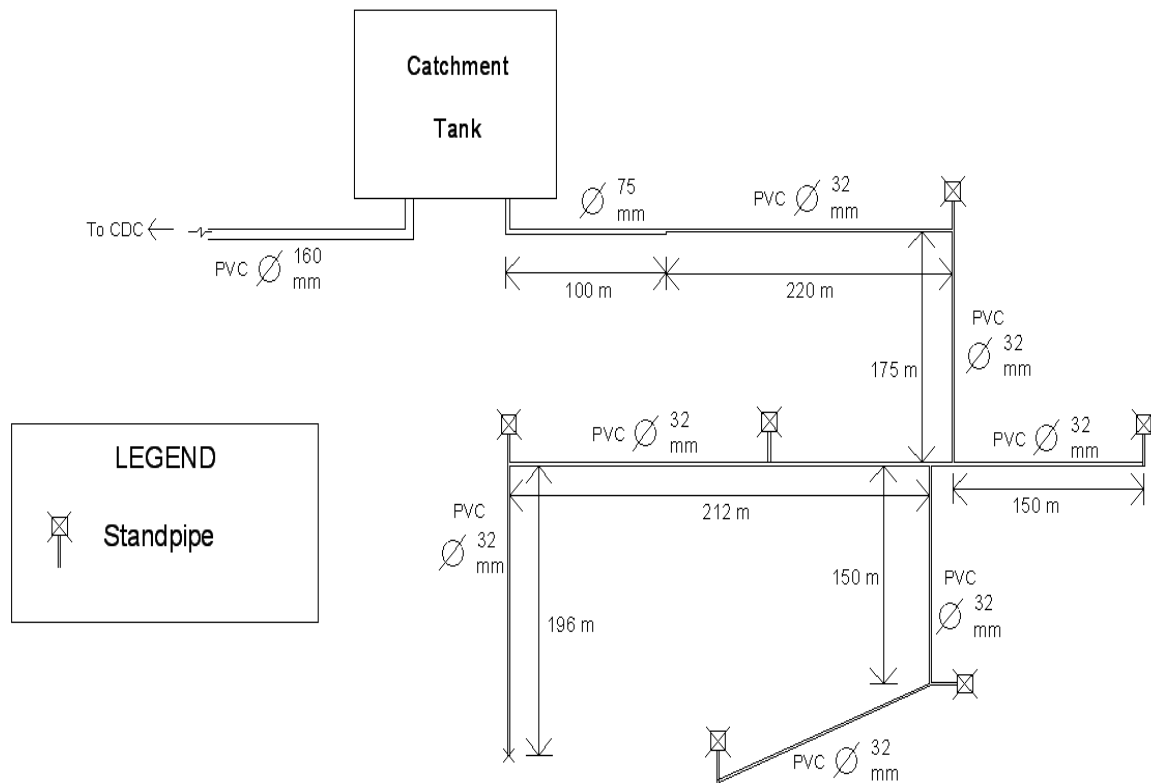


b) Photograph of Mautu-CDC joint water supply intake structure (by Fidelis Folifac, 2008)
 Figure 1: Mautu-CDC joint water supply intake structure

The distribution system consists of two separate distribution networks, that for CDC having a feeder pipe with a diameter of 160mm and that for the Mautu community having a feeder pipe of 75mm diameter reducing to 32 mm after 100m (Figure 2). The Mautu distribution network has six public standpipes along a network length of 1375 m to serve the community, which numbered 1500 in 1992 (but which had increased to 4000 by 2009).



a) Photograph of outlet from the intake (catchment) tank showing CDC and Mautu supply pipes.



b) Schematic view of the Mautu-CDC distribution network (not to scale)
Figure 2: Mautu-CDC intake (catchment tank) and distribution network.

Operation and maintenance of the community network

The system is managed by a community water management committee of five men and one woman, appointed by the village council. The management committee in collaboration with the village council established rules and regulations regarding the operation of the taps and activities near the water source. To generate income to carry out minor repairs and maintenance (repair/replacement of damaged pipes and taps) by a care-taker, having a basic plumbing knowledge, private connections were charged a one time connection fee (5000CFA, approximately \$10 USD). To ensure adequate control, cleaning and timely repairs of damaged taps, the committee appointed six “tap controllers” each in the vicinity of one of the public standpipes. The tap controllers delegate responsibilities such as organizing collective cleaning of the standpipe by households served by the tap, levying funds from households served by the tap in case of repairs, and stopping all forms of dish and clothes washing at public standpipes. It should be noted that the water management committee, the care-taker and the tap controllers are volunteers, and that the water is provided for free.

Emerging problems in Mautu and perception of profiteering

Findings from town hall meeting and semi-structured interviews suggest that the satisfaction derived from the project did not last for more than three years and by 2001 low water pressure was a significant problem. The perception of profiteering (exploitation of the inexperience of the community) by CDC was the main issue of concern.

Emerging problems

Three problems with the water supply network, identified from the discussions with the community, were the frequent occurrence of low water pressure at times of peak demand (mornings and evenings) resulting in long waiting times at standpipes, the lack of standpipes in new neighborhoods

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2 resulting in long distances to standpipes, and the frequent breakdown of standpipes. Due to these
3 problems, children were arriving late to school (after their water fetching duties) and many
4 households had reverted to the use of unprotected springs considered as unsafe compared to the
5 spring that was harnessed for the project (also the flow of several other springs had reduced or dried
6 up). This had fuelled anger and frustration, as the harnessed water source had previously served as
7 the drinking and cooking water source for over 80% of the population.
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10 The increasingly low water pressure over the project life is due to an increase in total water demand
11 due to an increase in the population served and due to an increase in the average level of service as
12 more private connections have been installed. The population of Mautu has more than doubled and
13 more than 30% of households now have a private yard/house connection. These phenomena are
14 expected to continue due to the comparative location advantages of Mautu and the increased
15 affluence of the households due to a growing income from cocoa and other cash crops. Private
16 connections are a concern as they lead to an increase in the quantity of water used in a household
17 (as the water does not have to be fetched) and because they are the cause of many leakages. The
18 household is responsible for putting in the private connection and the network inspection revealed
19 that, as many households have no plumbing expertise, the connection could be poorly executed
20 leading to leakages. The water management committee collects the private connection fees but does
21 not regulate or inspect the connections. Another contribution to low water pressure is the practice
22 of leaving private taps and standpipes open, resulting in a large wastage of water. This practice can
23 be attributed to the free provision of water and a feeling of lack of ownership/responsibility for the
24 system (discussed further below) by some of the community as they feel exploited by CDC.
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30 Poor responsiveness to repairs and maintenance also emerged as a problem during town hall
31 discussions. At the time of the meetings three of the six public standpipes had no taps, and one
32 damaged standpipe had remained closed for a long time. This was blamed on limited funds, lack of
33 accountability, and lack of transparency in the management of the connection fees. The
34 management committee attributes the lack of repairs and maintenance to a lack of funds and to their
35 lack of expertise both for repairs and maintenance, and for further expansion of the network. As
36 standpipe water is supplied for free and private connections are only charged a connection fee,
37 funds for repairs and maintenance are levied irregularly as needed. The frequent non-payment was
38 justified by households as being a consequence of the committee's lack of accountability for the
39 spending of previously collected funds. The combination of these factors has led to the committee
40 becoming dysfunctional, as, according to the chairperson, most of the committee members have
41 abandoned their responsibilities. The caretaker declared he was still motivated to voluntarily serve,
42 but regretted that it was impossible to do so without basic tools and materials. However, the tap
43 controllers were still very active but castigated the lack of collaboration by some households that
44 have embraced the free-rider attitude and do not contribute when it comes to collective labor and
45 contributions for repairs.
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50 *Perception of profiteering*

51 Despite the internal challenges faced by the community in managing their distribution network,
52 there was a general perception that CDC exploited the inexperience of the community during initial
53 negotiations, and thus acted in 'bad faith' in the planning and design of the system.
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56 This is attributed to CDC negotiating only with the chief and not also with the village council and
57 their advisors to decide on the terms of the agreement for joint exploitation of the water source.
58 The community (85%) felt that a more fair agreement could have been made with participation of
59 the village council due to their greater collective expertise and experience. The agreement reached
60 with CDC was thus unfair with the chief unaware of the consequences of what he had agreed to in
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terms of the sharing of the flow of the spring water source, the relative contributions of the partners and the lack of a framework for continued discussions/negotiations about the system and agreement.

The physical design of the system results in a large disparity in the flows supplied to CDC and Mautu. The diameter of the supply line from the catchment tank for CDC is 160 mm and for Mautu is 75mm reducing to 32 mm after 100 m (with no large withdrawals). A conservative estimate of the flow disparity, assuming the same head difference for both supply lines (neglecting the small elevation difference between Mile 30 (CDC) and Mautu), results in CDC being supplied with 96% of the flow and Mautu being supplied with 4% of the flow. There is also a potential disparity in water quality of the flow as the CDC supply line is mounted higher in the catchment tank than the Mautu line, so any sediments would go into the Mautu line.

CDC and Mautu village were both beneficiaries of the project, CDC obtaining a reliable and good flow for their water supply to the rubber factory and the camp, and Mautu obtaining a water supply distribution network with standpipes. Both partners contributed in kind to the project: CDC provided material and supervision, while Mautu provided labor. However the relative magnitude of the contributions is felt by the community to be unequal and unfair and hence they feel they have subsidized the provision of the water supply to CDC. Due to the lack of records from the initial project it is not possible to determine the value of the contributions.

There was no provision in the initial agreement for continued discussion between the project partners to consider future issues. Since 2001 there has been a considerable problem with low water pressure in Mautu's distribution network due to lack of flow in the system to supply the demand. The Mautu community only has access to 4% of the flow they had access to before 'sharing' the flow with CDC in the joint project. During a period of low water pressure some members of the Mautu community checked the CDC water supply to Mile 30 and the rubber factory and found they were not experiencing the same low water pressure problems. This was seen by the Mautu community as proof that CDC had 'played tricks' or had exploited the Chief's (or community's) inexperience to ensure its water supply to the detriment of the community's water supply. This led some youths to close the valve of the CDC supply at the catchment tank with the intention of showing CDC the effect of the water shortage the community was experiencing. This did not yield the anticipated result of initiating discussions between CDC and the community, and three cases of vandalism of the CDC lines has since occurred.

Lessons learned

The government's bias towards improving urban drinking water systems (Falk et al, 2009) has motivated rural communities to seek alternative means to improved drinking water systems (Ahmed & Sohail, 2003). In addition to self-help projects, joint projects with local corporations could be an alternative worth fostering to provide rural communities with improved drinking water supply systems. However, the benefits of the system may be short lived should there not be fair negotiations and if issues of future population and spatial growth, capacity building for operation and maintenance, revenue generation, are not given adequate attention by the experienced and resourced corporate partner or a community advisory service. The case study has demonstrated the challenges of corporate involvement in water supply at the local or regional level due to a disparity in experience, expertise and resources leading to exploitation of the community partner. This implies an urgent need to regulate partnerships in rural water supply projects, particularly in cases initiated by an experienced corporate partner, who will also be a beneficiary of the system.

Lessons learnt from the Mautu-CDC case study are:

- 1) During the initial negotiations, the community needs to be advised so that their lack of expertise and experience is not exploited by corporations in their pursuit of maximizing profits (Budds & McGranahan, 2003; Akumu & Appida, 2006). The excitement and inexperience of rural communities to have a piped water supply system increases their vulnerability in joint supply projects with more resourced corporate partners.
- 2) As water supply is a community asset, the community and not just the head of the local government (Chief) must be involved in the decision making. The participation of the community, including women and youths as those with the main responsibility for water, in the decision making (Njoh, 2003; Poolman & Van de Giesen, 2006) will improve the terms of reference, include local realities in the project design and contribute towards a shared understanding of the design choices, build trust and commitment as well as reduce the potential for post project conflict (Cowie & Borett, 2005; Pres, 2008). In addition using advisors and external elites will improve the community's pool of expertise (Njoh 2003; Njoh 2006).
- 3) The practice of rural communities providing manual labor as a contribution to development projects, especially in water supply, is not new (Page, 2003; Njoh, 2006). However in joint projects, in which a corporate partner is also a beneficiary of the system, the value of in-kind contributions need to be estimated to ensure a fair sharing of project costs.
- 4) Sustainable governance and, operation and maintenance of the community system require planning during project design (Rakodi, 2000; Prasad, 2006). A water supply system able to satisfy water demand can be sustainable. A community loses the motivation to contribute to the upkeep of a system that cannot satisfy demand, which in this case was due to CDC commandeering most of the flow from the community's main water source. Functional management of the system requires that the water management committee receives training and compensation for their time, the system be financially sustainable and the management of the system should enable timely repairs.
- 5) Exploitation by corporate partners of the inexperience of rural communities can be costly to the corporation in the long term. In this study the lack of trust and respect has led to vandalism of corporate assets and for the corporation to have a poor public image, which will affect any subsequent negotiations.

Conclusions and Recommendations

The Government of Cameroon could improve access to improved water supply in rural communities by providing advisory support to self-help and partnership projects to avoid exploitation by the corporate partners thus improving equity and hence the projects long term sustainability.

Partnerships with local corporations can be an attractive approach to foster access to improved water supply for rural communities. Considering the disparities in experience and resources between rural communities and corporations as well as the increasing practice of joint community-corporate projects in Cameroon, there is the need for legislated regulations and guidelines for such partnerships in water supply projects to ensure fair and reasonable agreements. For example it could be mandatory to have project design and terms of reference evaluated and approved by a local institution after independent consultation with the rural community.

On their own, rural communities may not seek external expertise in negotiating development projects of this nature. Therefore local NGOs working with rural communities in the areas of empowerment, mentality change, and capacity should pay attention on the structure and operations of community institutions with the goal of fostering participation and consultation in development

activities as well as accountability and transparency in the management of collective resources. These NGOs should also provide reference services to communities as needed.

The benefits of rural community water supply systems risk being short lived with the practice of ‘free’ water supply. We are by no means advocating for unaffordable tariffs and cash payments only (Bock & Kirk, 2006). If educated on the need to ensure adequate maintenance and repairs as well as future expansion of the distribution network, seasonal payments coinciding with income periods such as harvest seasons could be encouraged. Payment could be also be made in kind (labor) when needed. Once a system becomes dysfunctional due to lack of maintenance, it becomes difficult to levy funds from the users. Accountability and transparency is required to maintain the collaboration of the community in the management of a community asset.

To foster sustainable management of the systems, water management committees and care-takers need on-site training and a minimum compensation as a sign of appreciation and for motivation for their volunteer services. This can be in-kind such as exemption from community labor or a reduction in financial contribution for repair and maintenance. To prevent poor connections and damage to the distribution network, communities should maintain a pool of local technicians required and authorized to carry out work (e.g. private connections) on the network.

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