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Community Engagement Strategies: Lessons Learned from Community-Based Water Services in Cabo Delgado Province, Mozambique

By

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Degree to be awarded: Master of Public Health

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Abstract

Community Engagement Strategies: Lessons Learned from Community-Based Water Services in Cabo Delgado Province, Mozambique
By Herty Herjati

Background: The sustainability of water services is a problem in the African continent, even in a country like Mozambique, which appears to have a strong commitment to improving the health status of their population, an estimated 30% of hand pumps are not working at any given time (Bauchman, 2009). It represents an estimated total investment of US$ 1.2 to 1.5 billion, in addition to the human cost. Community based management water services that apply technology fit for the purpose and chosen by the user, and financial contributions by users was chosen as the approach to sustaining water services.

Purpose: This project evaluation was conducted to identify key factors that support sustainability of a community-based water project of the HAUPA project, Mozambique. Understanding community members' perspective on the community engagement activities to established community-based management is the other aim.

Method: Snapshot surveys were used to measure the level of governance elements of community-based management water services. The communities that had outlier scores were followed up with interviews. The interviews with community members, water committees and government officials from the provincial to the village level were conducted to have a complete picture of the evaluation results.

Result: About 70% of water points built in the HAUPA project areas were well functioning; however, about 17% of water points were functioning with difficulty, and that could become nonfunctioning water points if there are no efforts made to repair them. Community mobilization activities conducted prior to construction of water points may have contributed to high community participation scores. However, the HAUPA project failed to nurture the community engagement after the construction finished and services were handed over to the community. The

primary cause of less sustained water projects mat have been due to less transparent and accountable management, which led to less of a sense of community ownership of the water services. It is crucial to improve the project staff understanding of the different approaches for providing and constructing water services.

Conclusion and Discussion: Two levels of sustainability need to be addressed in community based management projects: the community and the institution.

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LIST OF ACRONYMS

AICD	Africa Infrastructure Country Diagnostic
CPS	Country Partnership Strategies
GDP	Gross Domestic Product
HAUPA	The safe water and sanitation project of CARE Mozambique
IBNET	International Benchmarking Network for Water and Sanitation Utilities
INGO	International Non-government organization
ISF	Ingénierie Sans Frontières
NGO	Non-government organization
JMP	Joint Monitoring Program
LOLE	Lel dos Orgaos Locais do Estado / Law of Local State Authorities
MDG	Millennium Development Goal
MIPAAR	Manual de Implementacao dos Projectos de Abastecimento de Agua Rural/The rural water supply project implementation manual, a complementary document of the National Water Policy
OMM	Organização dos Mulheres de Moçambique / Mozambique Women's Organization
USAID	Unites Stated Agency for International Development
WASH	Water, Sanitation and Hygiene
WSS	Water supply and sanitation

Tell me, I forget

Show me, I remember

Involve me, I understand

(Chinese proverb, Improving Outcome in Public Health Practices, p. 10

1. INTRODUCTION

1.1. BACKGROUND AND RATIONALE

Many countries in Africa continue to face basic health issues such as a lack of access to safe water. Access to safe water is more limited in rural areas than in urban than in areas, and can have a profound influence on the quality of a community's health. A recent study shows that limited access to safe water independently contributes to child and maternal mortality outcomes (Cheng et.al., 2012). Recognizing the critical issue of water, many international aid organizations that aim to significantly contribute population impacts of health continue to support the provision of water services in African countries, and many African governments continue to focus on safe water programs in their development planning.

A vast amount of international aid has been invested in improving access to safe water in African countries. However, the results have not reached Target 7 of the Millenium Development Goals (MDGs) to "halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation." Even in a country like Mozambique, that appears to have a strong commitment to improving the health status of their populations, has high number of the nonfunctioning wells at any given time. This problem of nonfunctioning wells has challenged improvements to access to safe water in rural areas (Banerjee, 2011). In the entire Africa continent, an estimated 30% of hand pumps are not working (Bauchman, 2009). Those numbers represent an estimated total investment of US$ 1.2 to 1.5 billion, in addition to human costs. Most of the causes of nonfunctioning water services relate to technical issues, such as unavailability of spare parts; the existence of alternative water resources; and the lack capacity to manage water services at the community level. Addressing these issues is the focus of many organizations who are designing sustainable water services.

Given that sustainability is a primary concern of most development programs, many organizations have developed conceptual frameworks for water services to ensure the sustainability of those services. Many African countries have adopted those conceptual frameworks to develop their national water policies. Mozambique is one of country that has revised their water policy to comply with framework for sustainable water services, and these water policies are the formal guidelines for implementation of all safe water projects in the country.

Most of the sustainability conceptual frameworks have similar fundamental characteristics, such as participation and partnership, to achieve sustainability. Specifically, two critical elements that project staff need to understand are: types of participation and power controls. Many projects have claimed to apply a community-based approach in their program; however, they have failed to apply these two elements at the highest level. In most community based-projects, plans, goals, and objectives, rarely come from the community, but rather from a project designed by academics and clinical experts in illness prevention and health promotion (Issel, 2009). A great deal of experience has shown that the failure of public health programs has been due to unrealistic goals and too much dependence upon a linear, rational approach of planning (Issel, 2009).

Measuring the impact of the program is an important issue. However, the focus of project evaluations is frequently measures of utilization, rather than of sustainability. There is no single operational definition of sustainability, and different operational definitions of sustainability indeed affect sustainability evaluation results. The latest trend shows a shift to greater participation of the public in the planning stage of health programs is a substantial change that is now considered the norm (Issel, 2009). In keeping with the emphasis on participation, the role and involvement of stakeholders should be understood at each stage of planning and the evaluation process.

1.2. PROBLEM STATEMENT

Though there are minimal differences in the magnitude of the problem, rural water conditions in all African countries have similar problems. One example is the issue of nonfunctioning water points. The similarities of rural water services include the dominant modality of water sources (wells or boreholes) and the challenge sustaining water services (Banerjee, 2011). In Mozambique, the consistent number of nonfunctioning protected wells over time has challenged efforts to increase access to safe water in rural areas. Governments are working hard to enhance access to safe water and maintain existing facilities, but low capacity at the local level weakens water supply management (Banerjee, 2011). Inadequate maintenance leads to frequent breakdowns and shorten the useful life of equipment obtained with scarce resources (Banerjee, 2011). In many African countries, the gap between available funding and the funding needed for new or rehabilitated systems is wide (Banerjee, 2011). As a result, these countries have a high dependency on external support to meet the MDG water and sanitation target to halve, by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. The indicators of progress toward this target are:

- Proportion of population with sustainable access to an improved drinking water source, urban and rural;
- Proportion of population with access to improved urban and rural sanitation. (UN Water, 2010)

In 1992, the political situation in Mozambique began to stabilize after two decades of civil war. With support from international donors, the country has achieved meaningful progress in the last two decades; however the country's MDG rank is still in 172 out of 182 countries in the United Nation (UN) Human Development Index (2009). Poverty rates are high (55% in 2007-2008); literacy rates are low (47%); and the percentage of the population with access to an

improved source of water or sanitation is low as well (42%). The USAID Country Health Statistical Report of Mozambique (2009) showed that total life expectancy is 41.2, with 70% of the population below the poverty line. The total adult literacy rate is 46.5%, the female adult literacy rate is 32% and the male adult literacy rate is 62%.

Seventy percent of 22.9 million people in Mozambique depend on agriculture for their livelihood (Country Partnership Strategy, 2012). However, many rural areas have been left behind from development programs. Mozambique has been praised for its outstanding performance in reducing the share of the population that consumes surface water and for ranking highest in rural reform; however, the high numbers of nonfunctioning water points present a challenges to achieving the standard indicators set by the MDG regarding access to safe water for rural populations (Water Aid, 2011).

The Poverty Reduction Plan II (*Plano da Accao para Reduccao da Probeza Absoluta II 2005-2009*) set the goal of increasing the provision of rural potable water and sanitation to 50% and 40% respectively. However, this target failed to be achieved; it was reported only 30% of the rural population of Mozambique had access to improved water services (CPS, 2012). The budget to build the safe water resources, such as boreholes, heavily relies on the external financial supports in the form of international donor funds and government grants. Almost 90% of total investment of water and sanitation in Mozambique were from donor aid (UN-Water, 2010).

1.2.1. THE NATIONAL WATER POLICY

The current Mozambique water policy is the revised version of the 1995 water policy. Revisions were made in 2007 with support from international donors (Janz, 2011). The significant change to the safe water program policy is the shift from a centralized to a decentralized policy. Before 1995, all water services were built and maintained by the government. Under the current water policy, the ownership of rural water services, as well as the financial and technical responsibilities to for maintaining the water services, is by communities.

Complementing water policy, the government of Mozambique developed the *Rural Water Supply Project Implementation Manual (MIPAR).* This document provides guidance on the roles and responsibilities of all stakeholders that are involved in rural water project implementation, from communities to central bodies (Water Aid, 2011). The financial aspect the water policy changed the nature of services from free to paid services. The community is required to share a certain amount of the water point installation costs, which are regulated by the government at the national level, and pay monthly contributions to maintain water services. The village water committee is responsible for managing the community contributions. The formation of village water committees reflects the principal of community participation, as water committee members are nominated and elected by all community members. The water policy also supports gender equity by requiring that 50% of the water committee members are females. This policy is legally binding on all actors of the water projects - the government, NGOs, the private sector and the communities themselves.

1.2.2. THE HAUPA PROJECT

CARE is an international non-governmental agency (NGO) whose mission is includes empowering communities. The proposal for the *Higiene Ambiental e Uso Produtivo da Agua* / Environmental Hygiene and Productive Use of Water (HAUPA) project details the design of a community-based safe water project for poverty reduction based in an empowerment strategy. CARE's mission was reflected in the goal of the HAUPA project, which was to contribute to poverty reduction among 311,000 rural inhabitants in five districts of Cabo Delgado and Nampula provinces through sustainable access to improved water and sanitation facilities and hygiene promotion (Project Proposal, unpublished). The project has a broader target as well; in addition to providing water for communities in the project areas, it sought to address common problems in rural water and sanitation sub-sectors in Mozambique, and significantly influence the way sub-sectors operate.

The HAUPA project's specific objectives were:

1. Increase sustainable access to water and sanitation among 311,000 rural inhabitants in three districts of Cabo Delgado and two districts in Nampula provinces;
2. Strengthen local and provincial government, and service providers from the private (for-profit and not-for-profit) sectors in three districts of Cabo Delgado and two districts in Nampula, in order for them to fulfill their roles and responsibilities as stated in the MIPAR and Law of Local State Authorities/ *Lel dos Orgaos Locais do Estado* (LOLE);
3. Ensure that communities are able to sustainably manage their water and sanitation infrastructure while ensuring equitable participation and benefits to disadvantage groups, considering income, gender, and HIV/AIDS; and
4. Test and document at least three innovative and potentially replicable approaches or technologies that will contribute to improving national policies for rural water supply, sanitation and hygiene promotion.

The approach of the program was to build capacity for water and sanitation project execution by local actors, including: NGOs, the small-scale private sector (technicians), and district and provincial governments. CARE's project was designed to comply with guidance from the national water policy. Focusing on rural water supply and sanitation, the project was predicted to have benefits half a million persons in the five districts.

The HAUPA project began in July 2004 and was funded by the Swiss Development Cooperation in the amount of US$ 3.7 million for the period ending in December 2007, but extended to December 2008. Additional funding was received from the Embassy of the Kingdom of the Netherlands in Mozambique (EKN) in the amount of EUR 8.28 million for the period ending in 2010 and extended again to mid-year 2011 for installation the water points.

The project design was revised in 2008 as a result of a mid-term evaluation in May 2008. The project was found to be operating unsatisfactorily and to experience slow rates of disbursement and execution. The findings led to a re-design of the projects to improve the execution rates and long-term project impact. The primary modifications to HAUPA included: (i) a reduction in the number of project components; (ii) an increase in attention to sanitation and hygiene; (iii) an increase in participation of district governments; and (iv) improve project management, supervision and monitoring. The strategic framework focused on: decentralization, government water sector policies and strategies, equity, efficiency, sustainability, capacity building, and innovation and learning.

Community mobilization activities are at the core of the HAUPA project strategy to ensure community participation. Activities consist of holding community meetings and forming and training village water committees. Every community member has the same right to be chosen as a member of a village water committee. The principle is implemented through the democratic election process of village water committee members.

Two main outcomes related to financing in the original proposal of the HAUPA project were: promoting saving and credit schemes; and paying for water fees. The government of Mozambique set up a fix fee of 2500 meticals as community sharing the installation cost, but the fee for monthly contribution was decided based on agreement in the community.

1.2.3. EVALUATION OF SUSTAINABILITY

Many community-based management projects fail to be sustained in the long-term, especially water project in African countries. Rates of nonfunctioning water services never decrease, including in Mozambique, despite the number of new water points installed in communities. These results have been found in a few studies on the provision of water points that

looked at project sustainability in Mozambique and studies in several African countries have also showed similar challenges of sustainability.

There has been a tendency to blame the failure of sustainability on the lack of community capacity to manage a community-based program in the past (Issel, 2009). However, sustainability studies of many public health programs also show that project cycle element – such as planning, implementation and monitoring of a program – as well as other factors, have contributed to a lack of sustainability of community-based projects (Issel, 2009). The level of understanding about sustainability by project actors may be a key factor in sustaining the community-based management project in the long term. On the other hand, strengthening the capacity of the implementing organization/institution also contributes to ensuring sustainability (Bossert, 1990).

The target of the HAUPA project evaluation on sustainability is to identify the best practices and weaknesses of the HAUPA community-based management project, and the results may be used to further advocacy strategies to local governments as part of the project exit strategy. The national water policy that supports community-based management of water projects is one of the advantages of the HAUPA project implementation, in contrast to other water projects in Mozambique. The existence of a national policy has shown that local governments have a strong commitment to the community-based approach. The only question is how to maximize the potential positive effects of the water policy to increase sustainability of water services.

1.3. STUDY SIGNIFICANCE

Water Aid, a UK based water initiatives organization, operates in many countries on the African continent, including in Mozambique, and consistently conducts rural water point sustainability studies. A Water Aid sustainability study has shown factors that heavily influence

the sustainability of community-based water projects that fit with Richard Carter's conceptual framework. Carter (2009) stated that the sustainability concept for rural water services relates to whether or not these services last over time. Numerous critical factors range from spare parts availability to effective community management models to finance for operation and maintenance and external support. The Water Aid sustainability study in Mozambique was conducted in Niassa Province, and the results point to similar problems of rural water projects implemented in other Mozambique provinces.

The HAUPA project evaluation gives another perspective on sustainability by digging deeply into the root causes of its challenges. Thus, the results of the HAUPA project evaluation may contribute to increasing an understanding of the key behaviors, the types of participation, and the level of power control to sustain the rural water services of the HAUPA project.

1.4. Research Objective

The objective of the study is to identify and understand the challenges of sustaining community-based management of rural water services projects based on the types of participation, partnership and power control, using a mix quantitative and qualitative methods.

1.4.1. Specific Aim

The study is designed as a qualitative project evaluation that followed up the result of snapshot surveys. This evaluation has aims to:

1.4.1.1. Identify key factors that influence the sustainability of the rural water services of the HAUPA project in Cabo Delgado Province, Mozambique.

1.4.1.2. Identify the best strategies for delivering community mobilization activities to achieve sustainable community-based safe water services for the rural population of the HAUPA project; and

1.4.1.3. Improve the quality of the partnership among all stakeholders of community based safe water services of the HAUPA projects.

1.5. Research Question

- What is the definition of sustainability in the context of the community-based management of water services of the HAUPA project?
- How does the definition of sustainability guide the implementation of community-based management water services of HAUPA project?
- How do the challenges of the HAUPA project influence the sustainability of community-based management water services?
- What is the promised approach to improve sustainability of a community-based management water services for a country that has a strong commitment to increasing rural water services?

2. Literature Review

2.1. Concept of The Sustainable Rural Water Services

Sustainability is an issue in global development that is faced by both developed and developing countries. There is no single accepted definition of sustainability in development (Janz, 2011). Although sustainability can be defined as simply as whether or not something continues to work over time, Jones (1995) stated that sustainability is a complex and contested concept (Janz, 2011). Richard Carter (2010) defined sustainability for rural water and sanitation services of African countries based on Len Abrams (2000) concept: "*Sustainability is about whether or not WASH services and good hygiene practices continue to work over time. No time limit is sets on those continued services and accompanying behavior changes. In other words, sustainability is about lasting benefits achieved through the continued enjoyment of water supply and sanitation services and hygiene practices* " (Carter, 2010; Janz, 2011).

A functioning water system needs many elements to be sustainable. The maintenance of the water points, the management of the water system, and the utilization of low-tech tools are vital elements for sustaining the rural water systems. Len Abrams (2000) stated that technical issues, social factors, financial elements, the natural environment, durable gender equity and empowerment, and institutional arrangements are key factors to establishing sustainability of water services. Those factors should be adequately and properly designed and incorporated into project plans.

Richard Carter (2010) developed a conceptual framework for sustainable water services based on the five key dimensions of sustainability of Jones (2001); Well (1998); Abrams (1998); Mukherje (1998) (Janz, 2011). Those five key dimensions are: institutional (organizational), social, environmental, technical, and financial/economic (Janz, 2011). These dimensions are interdependent and context specific and may show a different degree of sustainability in different contexts. There are 14 factors listed to establish externally supported, community-based management of water services (Janz, 2011). The framework divides the key factors into two groups: design and implementation, and external support.

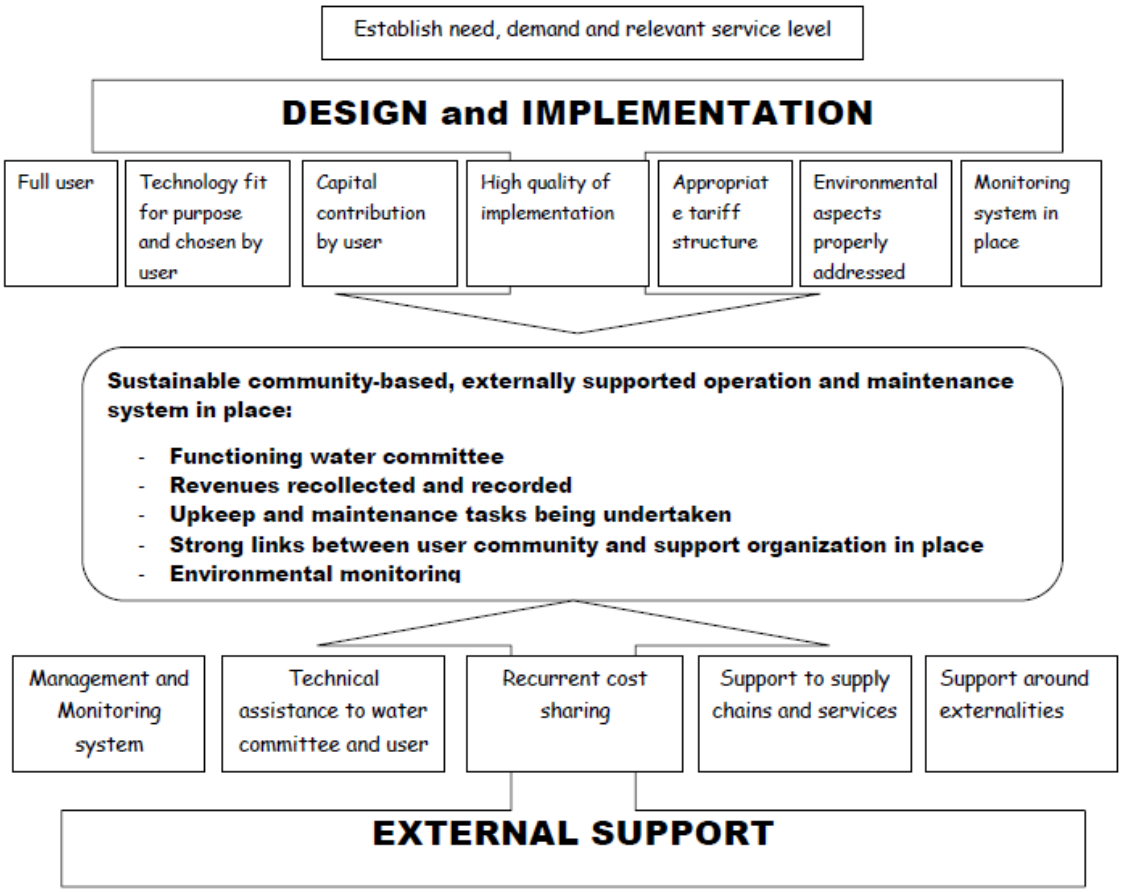

Figure1. A conceptual framework for sustainable water services (Carter, 2010). Adopted from Jansz S (2011) *A study into rural water supply sustainability in Niassa province, Mozambique*, WaterAid.

This framework shows that a real demand for water services is vital for achieving sustainable, community-based management of water services (Janz, 2011). Jones (2001) stated that the community satisfaction with its current source of water could eliminate the need for another water point; users will not prioritize and value a service that does not meet their needs (Janz, 2011). The involvement of users in projects and programs will indeed affect sustainability of water services (Janz, 2010). This has been shown through many new water services in low-income countries that have performed effectively for a period, and then either fall into disrepair or failed to provide continuing benefits to their users (Carter, 2010).

Carter's conceptual framework of sustainable water service was similar to Bossert's (1990). Bossert's conceptual framework was developed based on a comparison study of project sustainability of African and Central American countries. The conceptual framework showed that sustainability was influenced by contextual factors and project characteristics. The contextual factors were natural disasters; political factors; U.S- host country bilateral relations; socio-cultural factors; private sectors; implementing institution; donor coordination; and national commitment.The factors that were grouped into project characteristics were the project negotiation process; institutional and managerial aspects of project; financing; content aspects; community participation; and project effectiveness.

2.2. The Challenge of Sustainable Water Services

Many stakeholders and the current policy and strategy of water services have recognized the benefit of increasing the community's responsibility for managing water services; however, the result of the application of this principle may be inadequate (Carter, 2010). The community management model has sometimes been presented as a panacea for achievement of lasting services, but there is extensive evidence of its weaknesses in the absence of external support (Carter, 2010). Furthermore, relying heavily on a community management structure could jeopardize sustainability, because community management is only a partial solution to the problem of poor services (Carter, 2010). The new approach to achieve sustainable water services is to improve partnership of all stakeholders such as governments, private sector providers, local and international NGOs, and development partners with communities (Carter, 2010).

Abrams (2000) identified one challenge of sustainability of water services as the fact that it is not always necessarily an objective. The approach of establishing water services frequently emerges from the perspective of constructing a water system rather than providing a service. The list of differences of these two approached to established water services are summarized below.

Table 1. The differences between approaches to establishing water services (Len Abrams, 2000)

Constructing Water Services	Providing Water Services
• An event • A one-off product that is essentially technical in nature and requires little human interaction • End it itself after which the engineer can say "I've done my bit".	• Ongoing process • A complex process requiring a great deal of interaction among customers/consumers, providers, local authority, etc.. • A means to an end – a perpetuated benefit to the community. The project is, in fact, just a phase in the process of service provision.

Source: Len Abrams (2000), *The Sustainability Management Guidelines for Water Supply in Developing Communities.*

Abrams's argument is that "Once the water project is seen as a series of projects where the construction is the element of the center of attention, rather than the provision of a service, then the sustainability will hardly be achieved "(Abrams,2000). Provision of water services needs to include the initial construction phase, but the focus should be on the process of supplying water to communities (consumers) over a long period of time.

Carter (2010) has a different argument about why sustainability of water project is such a challenge. Carter states that there are three reasons that the sustainability of the water projects may be compromised: 1) limited capacity including limited knowledge, skills and material resources of communities, local government institutions and other service providers to manage systems; 2) inadequacy of financial revenues to cover the full operations' maintenance and replacement costs of infrastructure; and 3) the historical approach to service delivery of different water projects actors.

There are 14 key factors for achieving sustainability and externally supported community based management of water services that could be measured to evaluate sustainability. Those

factors are: (1) established need, demand and relevant service level; (2) full user participation; (3) technology fit for purpose and chosen by users; (4) capital contribution by users; (5) high quality of implementation; (6) appropriate tariff structure; (7) environmental aspects properly addressed; (8) monitoring system in place; (9) community-based externally supported O&M system in place (water user committee / WUC, revenues collected and recorded, upkeep and maintenance tasks being undertaken, strong links between user community and support, strong links between user community and support organization in place, Environmental monitoring); (10) management and monitoring system; (11) technical assistance to water user committee/village water committee and users; (12) Recurrent cost sharing; (13) support to supply chains and service providers; and (14) support around externalities. Those factors in Carter's conceptual framework are in line with Mozambique's national water policy and the accompanying documents (Janz, 2011).

Table 2. Evidence of key factors identified from Carter's conceptual Frameworks (2010) in the content of the Mozambique Water Policy and its accompanying documents.

Key Components Identified from Conceptual Framework (Carter, 2011)	**Evidence of components in national policy**	**Reference**
Demand	• Government continues to develop systems for rural water supply under the principle of demand • Implementation of a Demand Response Approach through participation of end users in decision making process	Water Policy, 2007
Full user participation	• Beneficiaries must participate in all water supply project phases as a way of ensuring sustainability of infrastructures • Government recognizes the important role of women in the provision of water supply by encouraging their active participation in all phases of the project cycle	MIPAR, 2001 Water Policy, 2007
Technology fit for purpose and chosen by users	• The type and level of service will be selected according to the natural conditions of the area and according to the beneficiaries' capacity to pay, manage and maintain the service	MIPAR, 2011
Contribution by users	• Users properly organized, contribute to the construction and rehabilitation of water sources and ensure the collection of fees that	Water Policy, 2007

	are sufficient to at least covering operating costs and maintenance • Communities have the competence to decide on the contribution modalities and ways of collecting such contributions	MIPAR, 2001
High quality of implementation	• Once constructed works are completed and the water source is tested by the supervisor, the work will be handed over to the community in the presence of representatives from the district and from the provincial DDPWH	MIPAR, 2001
Appropriate tariff structure	• The community has the right to determine the mechanism of charging the tariff and deciding on those who are exempted for payment for being unable to contribute (orphans, older people and the handicapped, etc) • The water tariff policy will be guided by the principles of user pays, polluter pays, sustainability, equity, efficiency of water use, environmental conservation, decentralization and participatory management. The rates in rural areas and how they are recovered will be appropriate and adapted to local condition	MIPAR, 2001 Water Policy, 2007
Environmental aspect properly addressed	• The main objective is to ensure that the development and management of water resources fully take into account the need of environmental conservation with an adequate water supply, both in quantity and quality to environmental sustainability	Water Policy, 2007
Monitoring system in place	• The register of infrastructure systems of rural water supply is an essential tool for planning and management and should be appropriately organized and updated regularly • The management tools for rural water supply management will include the activity plans, progress reports, evaluation and management information systems	Water Policy, 2007 MIPAR, 2001
Community based externally supported operation and maintenance system in place: water committee functioning, revenues collected and recorded, upkeep and maintenance tasks being undertaken, strong links	• The management body at the community level is the water committee, with the following duties: - Organize the community. - Collect and manage funds to be used on operation and maintenance, repair and replacement. - Promoting the cleaning of the water source - Undertake routine maintenance of the water source - Repair hand pump - Ensure the correct use of the water source	MIPAR, 2001

between user community and support organization in place, environmental monitoring	- Keep the district authorities regularly informed of the water supply situation.	
External support: management and monitoring systems	• The participation of the community can be encouraged through technical advice provided by companies working in the social area which, using participatory methodologies, will help the community in the identification of problems related to its water supply, with the aim of requesting funds for its improvement	MIPAR, 2001
External support: technical assistance to water supply	• The operation, maintenance and management systems for rural water supply can be provided by separate agencies or private entitles under contract, leaving communities to ensure the monitoring of it. • If maintenance groups for any reason are unable to do repairs, the community may resort to manual pump mechanics to do the work against payment of services. When breakdowns are complex and the solution cannot be found within the community resources, the water committee will informed the district administration about the situation	Water Policy, 2007 MIPAR, 2001
External support: cost sharing	• The costs of operation, maintenance, repair and replacement of infrastructures of rural water supply will be borne fully by the community through tariffs.	MIPAR, 2001
Support to supply chain and service providers	• The DPOPH has the following duties: - Promote and guarantee availability of hand pumps and spare parts through local traders, mechanics of pumps, etc - Encourage private sector involvement in the preparation and support of communities, design, construction, inspection, maintenance support, provision of spare parts, research and production equipment. Where the private sector is not able or interested in getting involved, other flexible solutions will be found tailored to each region. • The provision of hand pumps and spare parts in rural area should be carried out with the involvement of local initiatives, including private sector traders and community organizations. Government encourages network marketing of pumps and their spare	Water Policy, 2007

	parts at provincial, district and local levels	
In relation to externalities	• Despite the uncertainty surrounding the issue of climate change, the pictures that emerges from the scientific analysis is that climate change will result in increased frequency and severity of floods and drought, demanding that Mozambique make a comprehensive plan to be properly prepared to deal with this extreme events	Water Policy, 2007

Adapted from Jansz S (2011) A study into rural water supply sustainability in Niassa province, Mozambique, WaterAid.

Table 2 shows that Mozambique's water policy, in relation with Carter's sustainability framework, is effective at achieving rural water services sustainability. However, the degree to which the policy is being put into practice is a concern for all stakeholders. The result of the Water Aid study of rural water supply sustainability in Niasa Province, Mozambique, identified four main areas that need to be improved to address the challenge of sustainability of rural water services: policy, capacity, community management models and external support (Janz, 2011). One interesting finding of the Water Aid study was that respondents did not emphasize finance as a key issue. Furthermore, the study showed that the community had sufficient funds to pay for the repair of water points, but did not always wish to contribute regularly for operation and maintenance.

2.3. Individual and Community Level Behavior Changes

The role of water village committees in the HAUPA project is the agent of change at the community level. MIPAR guides community mobilization activities, including the training of the village water committees. Training materials are used to train committee members to manage, maintain and promote water services at the community level. Village water committee membership is voluntary, in accordance with Mozambique's national water policy and reflects a focus on community partnerships and participation in community-based water projects. Understanding the motivation of water committee members to serve is one of the key factors in measuring rural water service sustainability.

There are several theories of behavior change at the individual level that support community participation as the backbone of a community-based project. Mainstream behavior change theories at the individual level are the Theory of Reasoned Action (TRA), the Health Belief Model (HBM), and the Extended Parallel Process Model (EPPM). These three theories focus on the selection of a specific aspect of the individual's attitude, beliefs, and/or cognition as the target of a health campaign (Dutta et al., 2005). The focus on the individual guides the choice of methodologies and practices of academics and public health program planners (Dutta et.al., 2005). It also supports the argument that engaging in or not engaging in as a result of individual-level processes that precede the behavior (Dutta et. al.,2005). However, targeting behavior change at the individual level will fail to capture the locus of the decision in the collective (Dutta et al., 2005). Dutta et al., (2005) argued that "Subjective norms, although targeted on the individual's evaluation of the important others in the interpersonal network, do not effectively tap into the complexity of the social fabric that constitute health behavior". Dutta et al. (2005) also stated that the engagement in behavior at the individual level is inherent in the broader collective, rather than simply motivated to comply with the important others within his or her immediate network.

However, in terms of the means of community empowerment, Sen (1992) articulates that capacity building is the first and foremost step forward toward greater and better health of people and communities (Dutta et al., 2005). Health campaigns use to put poverty and the lack of basic resources at the center of human behavior and communicative choice (Dutta et.al., 2005). When the health campaign seeks to influence the health of undeserved population, a structural approach could be implemented (Dutta et.al., 1995).

In the structural approach, capacity building efforts do not mean just targeting the individual, but also the individual's social network of partners; family members; friends; communities; the infrastructure and the institution on his or her environment; and the legal, political, and economic realities that encompass his or her life (Dutta et.al. citing Senderowitz,

2000; Sweat & Denison, 1995; The Synergy Project, 2002). The structural approach aims to develop social responsibility for health within the community. An example of a campaign strategy that shifted the locus from the individual to the community (Dutta et.al., 1995 citing Gillis,1999; Mittelmark, 2001) was the "People Assisting Their Health" (PATH) campaign in Nova Scotia, Canada (Dutta et.al., 2005). In that campaign, community members participated in citizen meetings, designed community health impact assessment tools, and ensured the implementation of the assessment tools in community health planning and in municipal decision making. To achieve the aims of a structural approach, capacity building should be followed up with monitoring and evaluation activities, such as individual-level surveys, as well as other measurement techniques like focus groups, group discussions, participant observations, ethnographies, network analysis, and geographical tools (Dutta et.al., 1995).

Another promising approach to creating behavior change at the community level is the Community-based Participatory Action Research (CBPAR) approach. CBPAR approach was developed to give full control back into the community. Control is defined as having opportunities to access materials and resources that satisfy basic human needs; exercise participation and self-determination; and experience competence and self-efficacy (Wilson, 2008). CBPAR is not the first community-based approaches to be developed to improve community capacity, but it is different from other community-based approaches due to its aim to change the basic underlying causes of problems rather than address the symptoms (Wilson, 2008). This approach requires an intervention model that posits that participation has a positive influence on beliefs and teaches a range of behaviors. That in turn, positively influences proximal outcomes, such as willingness to use conflict resolution skills and group collaborative decision making.

Wallerstein and Duran (2008) explain that many academics and experts ask about the significance of participation. Participation is critical to good health, and the importance of

community participation in improving health conditions has been recognized at many international health conferences, such as at Alma Ata (1978), Ottawa (1986) and Jakarta (1996). Wallerstein and Duran also cited the Jewkes and Murcott (1998) view of participation as a resource originating from people within their social contexts, rather than from the health care system. Jewkes and Murcott (1998) also argued that participation is seen as critical to reducing dependency of health workers, ensuring cultural sensitivity of programs, facilitating sustainability of change efforts, and enhancing health in its own right.

Using participation in development studies, public health, and participatory research has occurred for decades. Only recently have researchers started to question whether the reality of participation reflects the ideal (Wallerstein, 2008). For example, Cornwall and Jewkes (1995) stated that Rapid Rural Appraisal (RRA) approach limited the definition of participation as to engaging community members as informants (Wallerstein, 2008). Goodman (2001) and Greenwood et al. (1993) explain that participation is a developmental, emergent process that requires nurturing beyond the initial intentions (Wallerstein, 2008).

Under the CBPAR concept, the most important issue in participation is the relationship between outside researchers and community members (Wallerstein, 2008). Participation is seen to support the balance of power between communities and researchers to promote genuine partnerships (Wallerstein, 2008). One of the principles of CBPAR involves recognizing that both outside researchers and community members have needs and agendas that may be shared, but at other times are divergent or conflicting (Wallerstein, 2008). For example, community members may be more interested in the jobs that research projects may bring to a community than in the knowledge produced (Wallerstein, 2008). Today, the CBPAR is the most used concept in many projects for changing community behaviors, such as smoking and diet in Europe and the U.S.

Community development projects reveal that poverty and poor health are caused by social and economic structures based on class and power, rather than individual failings. According to Hart and Bond (1995), health promotion through community development projects focuses on helping community marginalized or low status groups address their own health issues (MacDonald, 2003). The participation approach, according to Carr and Kemmis (1986) was also determined to improve the delivery of services for marginalized groups, not by getting communities to directly address their own problems but by changing health and welfare organizations (MacDonald, 2003).

2.4. CULTURAL COMPETENCE

Diversity and cultural competence has rarely been addressed in program planning or evaluation. Cultural diversities exist in any community, and the fact that a community-based project involves other actors outside the community is even more reason to address cultural diversities when designing a community-based project. Each actor involved in a community-based project brings their own culture related to health organization and programs into project planning and implementation.

Culture, diversity and life circumstances critically influence cultural values, norms and behaviors, which in turn influences health discussion (Issel, 2009). Diversity may affect health disparity issues in communities, intervention choices and service deliveries. Diversity issues should be considered at the beginning of a project cycle due to the pervasive effect of diversity (Issel, 2009). Issel (2009) stresses the issue of cultural competency of the program staff because "the culture of health care organization and the cultural competency of the program staff are directly related to the ability to culturally tailor programs, as is the information of coalitions."

Culture is difficult to measure; it is often implicit, granted and not expressed as an independent factor (Issel, 2009). Because a dominant culture always exists at the societal level,

measures of culture are less useful in health programs than indicators of more discrete and smaller subpopulations, such as those that might be defined by ethnicity or nationality (Issel, 2009). Cultural identity continues to be represented by ethnicity as a proxy (Issel, 2009).

In general, the stakeholders of public health programs include state or local health agencies, profit and non-profit organizations, and community-based organizations. Issel (2009) cited Deal & Kennedy (1982) and Schein (1995) regarding the concept of organizational culture, saying that "each organization has a unique set of values, norms and beliefs that are collectively held by its members and that are passed on to the new employees; this constitutes the organizational culture."

The success of health programs in terms of financial, personnel, and other organizational support is related to the sensitivity of program managers to the degree of fit between the organizational culture and the goals of the health program (Issel, 2009). The other implication of organizational culture for program managers is that staff with work experience hold some of the values and norms of their prior organizational culture. It is very important to be culturally sensitive and as competent as possible; acceptance of different values and beliefs can be difficult, particularly when those cultures are dramatically different from one's own.

Table 3. Cultural Continuum with Examples of the distinguishing Features of Each Stage

	Cultural Destructiveness	Cultural Incapacity	Cultural Blindness	Cultural Openness	Cultural Competence	Cultural Proficiency
Attitude toward other cultures	Hostility	Dislike, separate but equal	Ambivalence, treat all alike	Curious, cultural awareness	Respect and tolerance, cultural sensitivity	Fully comfortable, cultural attunement
Knowledge of other culture	Active avoidance of knowledge	None	Little or none	Some	For amount	Extensive
Degree of integration across	None	None	None	Contemplation of potential benefits of	Some integration, some	Extensive integration, fully

cultures				integration	elements of multicultural integration	multicultural, fusion of cultures
Implications for health program of participants at each stage	Programs address consequences of cultural destructiveness	Need to have programs provided to separate groups	If have multicultural elements, may need to justify and explain	Can provide program to participants from multiple cultures but will need to provide information and role modeling of competence	Can provide program to participants from multiple cultures with minimal adjustment	Can provide multilingual, multicultural interventions in one program

Adapted from L Michelle Issel (2009), Health Program Planning and Evaluation, A practical, systematic approach for community health, p-55

2.5. PARTNERSHIP CONCEPT

The UN Report on Water Global Annual Assessment of Sanitation and Drinking-water (2010) acknowledges the importance of partnership among stakeholders. The majority of the water project reports include measuring participation and partnership from an outsider's perspective. The typology of participation developed by Jules Pretty (1995) is one of the concepts that should be understood by project staff measuring the community perspective on participation. Pretty (1995) categorized types of participation based on the shifting of authority control to community control (Cornwall, 2008). Pretty's typology of participation could improve interventions due to a clear understanding of the motivation of those who adopt and practice participatory approaches. Pretty (1995) defined seven types of participation (Cornwall, 2008), in details:

1. **Manipulative participation**

   Participation is simply a pretense, with 'people' representatives on official boards, but who are unelected and have no power.

2. **Passive participation**

People participate by being told what has been decided or has already happened. It involves unilateral announcements by an administration or project management without any listening to people's responses. The information being shared belongs only to external professionals.

3. **Participation by consultation**

People participate by being consulted or by answering questions. External agents define problems and information-gathering processes, and so control analysis. Such a consultative process does not concede any share decision-making and professionals are under obligation to take on board people's view.

4. **Participation for material incentives**

People participate by contributing resources, for example, labor; in return for food, cash or other material incentives. Farmers may provide the fields and labor, but are involved in neither experimentation nor the process of learning. It is very common to see this 'called' participation, yet people have no stake in prolonging technologies or practices when the incentives end.

5. **Functional participation**

Participation is seen by external agencies as a means to achieve project goals, especially reduced costs. People may participate by forming groups to meet predetermined objectives related to the project. Such involvement may be interactive and involve share decision-making, but tends to arise only after major decisions have already been made by external agents. At worst, local people may still only be co-opted to serve external goals.

6. **Interactive participation**

People participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just the means to achieve project goals. The process involves interdisciplinary methodologies that seek multiple perspectives and make use of systemic and structured learning processes. As

groups take control over local decisions and determine how available resources are used, so they have a stake in maintaining structures or practices.

7. **Self-mobilization**

   People participate by taking initiatives independently of external institution to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. Self-mobilization can spread if government and NGOs provide an enabling framework of support. Such self-initiated mobilization may or may not challenge existing distribution of wealth and power.

In conclusion, the community-based project is the most promised approach of community empowerment and sustainability. However, many failures could be due to the misinterpretation of a community-based project as a community driven project. Partnership is critical for sustainability of community-based project. All elements of sustainability would not be united without adherence of partnership. Partnership in the health sectors was defined by the WHO as bringing "together a set of actors for the common goal of improving the health of populations based on mutually agreed roles and principles" (Buse and Walt, 2000).

3. STUDY DESIGN AND METHOD

This thesis was based on the evaluation of the HAUPA project, which seeks to investigate the sustainability of rural water services in two project districts, Balama and Montepuez, in Mozambique. The aim of the project evaluation was to measure the sustainability of the water services installed by the HAUPA project. The evaluation used quantitative and qualitative methods. The quantitative method was conducted by using a snapshot survey questionnaire developed by CARE UK to quantify the factors that relate to sustainability of a rural water services. Direct observation and interviews with communities and water committee

members were the qualitative methods used to gain a deeper understanding of how the water points were managed and to identify the factors that contribute to sustaining water services.

3.1. Rationale of Methodology

The thesis presents data collected using qualitative methods for project evaluation. Rather than exploring the factors that contribute to sustainability, this study explored one aspect of the preliminary findings regarding a change in health behavior: the utilization of paid water services. Different key themes that emerged from the preliminary qualitative analysis led to conclusions that are different than those found in the original project report.

3.2. Project Sites and Selection of Study Communities

The HAUPA project was implemented in two provinces: Cabo Delgado and Nampula. The project districts were the Balama, Montepuez, and Namuno districts in Cabo Delgado Province and the Erati and Mecuburi districts in Nampula Province. Two districts, Balama and Montepuez, were chosen as the sites for the project evaluation due to the availability of support from the CARE office in Pemba. The evaluation project was chosen through a discussion with the project manager of the HAUPA project.

3.3. Field work

In general, the government of Mozambique is the institution responsible for the water and sanitation program. The National Water Policy was developed and officially implemented in 1995. Therefore, the Ministry of Water could be assumed to be a rich informant about the water project. At the provincial level, the responsibility for implementing water and sanitation program falls on the Office of Public Works (*Obras Publica*), and the District Water Office is the institution responsible at the district level. The responsibility for ensuring the quality of water belongs to the Ministry of Health.

At the district and community levels, the local government is exempted from taking an active role in rural water service management. Their responsibility is limited to coordination, monitoring and evaluation.

During the period of June to July 2011, snapshot survey were conducted in a total 86 communities, followed up by community group interviews, in depth interview of water committee member and government officials. Others interviews were conducted with local and international NGOs staff.

Table 4. List of interview participants

Type of interviewee	Balama District	Montepuez District
Staff of the Office of Public Works at the provincial level	1	
Staff of the District Water Office		1
Chief of Community	1	1
Village Water Committees	5	4
Community groups	5	4
Staff of partnering NGO	1	
Staff of other INGOs	3	

Observation:

The water point was observed in order to check functionality, identify the type of hand pump and the type of wells, and identify the age of the water points.

Snapshot survey:

The snapshot survey required at least five people to participate. The snapshot survey was translated into Portuguese, but most community members spoke in Macuan (local language). There was no pilot conducted for the snapshot survey; the first three snapshot surveys were treated as a test.

Survey participation was voluntary. The recruitment of participants was done by CARE project field staff. The field staff informed the gatekeeper in the communities about the purpose of the survey and invited community members to participate. Data collectors preferred that survey

respondents be female because they are the primary users of water services; however, several of the respondents were male. The other requirement of the snapshot survey was to exclude village water committee members and/or local authorities. Again, the field team could not avoid including some of those individuals.

The guidelines stated that each participant should choose the answer of each question through group discussion. The process of carrying out the first three snapshot surveys indicated the need to change that method. The other challenge was the questionnaire translation. The translated questionnaires use formal Portuguese words and the project field staff had difficulty translating them into Macuan. Another problem occurred when the project field staff was unavailable to translate the surveys. The translation had to be done by a participant who speaks Portuguese. In addition, the length of the survey items made it difficult for respondents to remember the questions and all of the answers options before responding. As a result, they often repeated the answers of other participants, especially the participants in each group who had the highest rank in the community.

Finally, there were no specific meeting spaces in the community in which to conduct a confidential discussion without attracting some observers. Frequently, the observers distracted the participant from process by making comments or telling participants to answer in a certain way. There were also problems arranging community meetings due to the lack of a means of a communication and transportation among field staff and key people in the community.

Due to those factors and for the sake of efficiency, the survey method was changed to group interviews. The interpreter read each question and the project field staff translated it into Macuan, and each answer given was matched with the corresponding answer option. One copy of the questionnaire was left with the community to be reviewed and filed.

There are exemptions for some water points from the snapshot surveys because there were no well-informed community members and/or water committee members present in the

village at the time the snapshot survey was being conducted. The project evaluation was conducted at the time of the cotton harvest and most of the community members were in the fields for harvesting. In addition, there were communities who had more than one water point, but they were managed by only one water committee.

In-depth Interview:

Interviews with government officials were conducted to collect information regarding the implementation of the National Water Policy. The aim of the interviews with INGOs was to explore the partnerships and coordination of rural water services at the provincial level. In addition, the authorities at community level were interviewed in order to understand all aspects of sustainability of rural water service.

The in-depth interviews were of two village chiefs, one district level officer and one provincial level officer. The selection of in-depth interview respondents was based on the willingness and availability of the government officials. The field team did not interview the Balama district level officer because the person in charge was not available. INGOs staff interviews were done with three NGOs who had implemented similar water projects in Cabo Delgado Province - Helveta, Agha Khan Foundation and Ingeniera Sins Fronteira. An additional interview with an AMASI/CARE field officer was conducted to learn about the community mobilization activities that were implemented.

Community group interviews:

Both the participants for the snapshot surveys and the group interviews were selected on site. Preferences for selection were adult women who, at the time of the visit, were taking water from the observed water point. The communities that were selected for group interviews were communities with low snapshot survey scores (<25th percentiles) and/or a high snapshot survey score (>75th percentiles) as they represented outliers. The field team excluded the non-CARE

project's communities for group interviews, because no community mobilization activities were done in the non-CARE project communities.

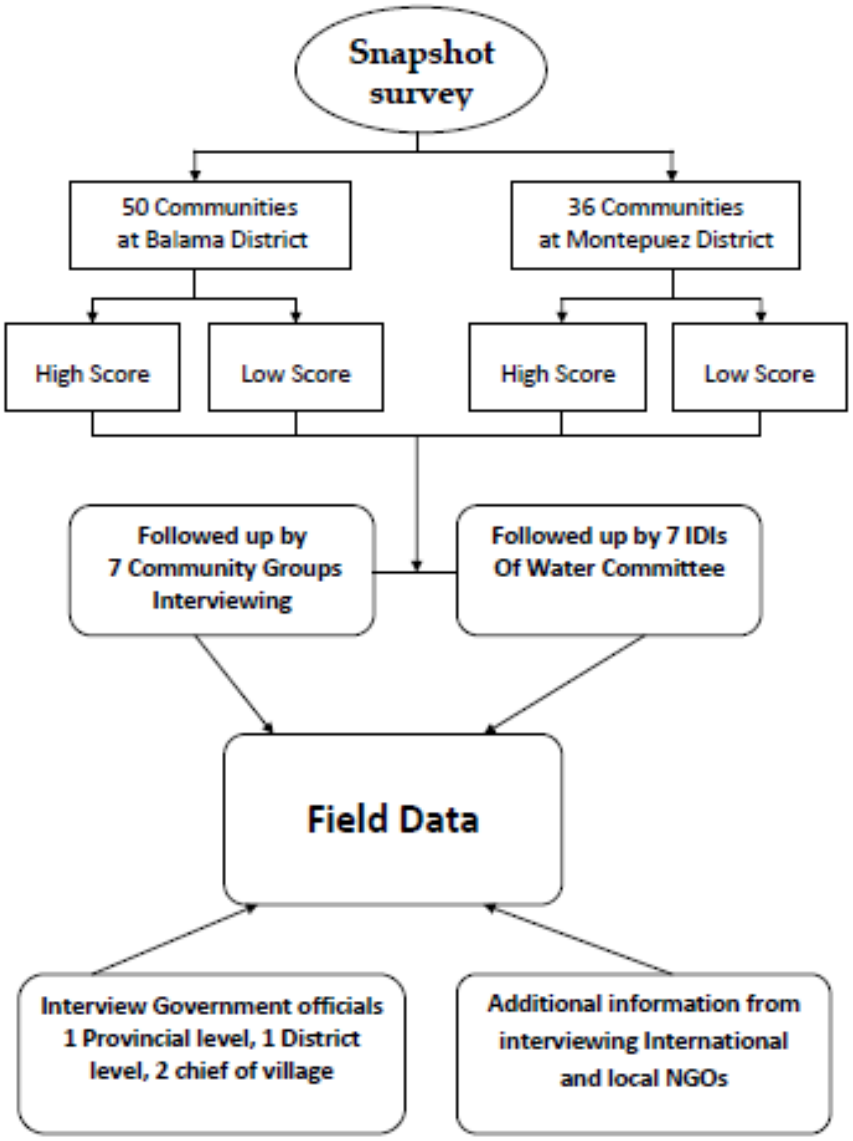

Figure 2. The scheme of data inventory

3.4. Data Analysis

The qualitative data was analyzed using case by case analysis of the field notes. The inductive themes were developed using four elements of the good governance concept: participation, transparency, accountability, and inclusiveness. The findings of each level were pile sorted and

grouped into other codes, which were governance, technical, environment and financial. The deductive codes that emerged from the findings were willingness to pay, trust, etc. Those codes were compared to the additional literature reviews of the community-based management water project.

3.5. Strength and Weakness of the Study

One strength of the study is the data collection methodology, which is a combination of quantitative (the snapshot survey) and qualitative methods. All processes were recorded and documented, and the field work was fully supported by the CARE field office in Mozambique and CARE US. Another strength is the rich information that was gathered as the result of the open communication of the Balama and Montepuez people. The challenges of this study are related to language and human resources. Due to the data collector's limited skills in the local language, there are no verbatim transcriptions of each individual and group interview. The field notes were used as the primary source for the qualitative analysis.

4. Findings and Results

4.1. Descriptive Analysis of Snapshot surveys

One hundred and twelve water points in two districts were visited during the evaluation. Only 86 water points are included in the snapshot surveys: 36 (41.86%) water points were surveyed in Montepuez district, the other 50 (58.14 %) water points were surveyed in Balama district.

4.1.1. Technical Aspects

From a total of 86 water points, 15 (17.44%) water points were not functioning, 11 (12.79%) were functioning with difficulties and 60 (69.77%) were well functioning. The data collected from the observation of the water points included: the type of wells, the type of hand

pumps, the age of the water points, and the name of project that supports the water points. The distribution of each observation is presented in the Table 5 below:

Table 5. The distribution of the characteristics of water points in Balama and Montepuez districts, Mozambique, June-July 2011 (N=86).

Characteristics	Frequency (%)
Total water points visited (n=112)	
Water points surveyed	86 (77 %)
Functionality (n=86)	
Functioning	60 (69.77 %)
Functioning with difficulties	11 (12.79 %)
Non-functioning	15 (17.44%)
Type of wells (n=86)	
Borehole	72 (83.72 %)
Dug well	14 (16.28 %)
Type of hand pumps (n=86)	
Afridev	78 (90.70 %)
Rope pump	6 (6.98 %)
Nira Af-85	2 (2.33 %)
Age of water points (n=84)	
1 year	7 (8.33 %)
2 years	25 (29.76 %)
3 years	34 (40.48%)
4 years	15 (17.86 %)
> 4 years	3 (3.57 %)
Project origin	
HAUPA	74 (86.05 %)
Non HAUPA	12 (13.95 %)

There are four components of sustainability that were measured in the snapshot survey questionnaire. Those components are participation, transparency, accountability and inclusiveness. Each component has five questions and each question has three levels of value.

The maximum value of each component is fifteen and the minimum value is five. In general, snapshot surveys in general showed good results for each component.

Table 6. The average scores of sustainability characteristics (N=86)

Components	**Mean (SD)**
Participation	12.45 (2.93)
Accountability	9.62 (2.25)
Transparency	9.65 (2.22)
Inclusiveness	10.62 (1.77)

The score for participation is the highest compared. Participation means that the community had been consulted about the water point constructions of the water point; and had paid initial contributions, such as, the provision of food and water to the builders during construction; and that the water committees had been trained and made aware of the re-election of water committee members.

The government of Mozambique is one step ahead on gender equity issues. The MIPAR stated that 50% of the membership of the village water committee must be female. The measure of inclusiveness is slightly better result because of this rule.

Table 7. 2 x 2 table of functioning status compared to the type of wells and the type of hand pumps in Balama and Montepuez districts, Mozambique, June – July 2011 (N=86).

Characteristics	**Functioning (%)**	**Not functioning (%)**
Types of Hand pumps		
- Afridev	58 (85.57%)	9 (13.43%)
- Rope pump	0	6 (100%)
- Nira Af-85	2 (100%)	0
Types of wells		
- Borehole	54 (85.71 %)	9 (14.29%)

- Dug Well	6 (50%)	6 (50%)

The Afridev and NIRA pumps have better performance in the longer term than the rope pump. According to the Rural Water Supply Network (RWSN) sites (www.rwsn.ch), the rope pump was intended for use by single household or by small communities with a maximum of ten households. On the other hand, Afridev and Nira AF-85 pumps can serve a larger population: one hand pump is intended for 300 people.

CARE was asked to install rope pumps at the beginning of the project. The advantages of using rope pumps are the possibility of locally producing body and spare parts for the pumps, the cheaper cost of installation, and the ideal nature of the pump use in dug wells. The village water committees were trained in the skills of maintaining and repairing rope pumps. However, no one sell the spare parts because no local artisans are interested in producing it. Later, the HAUPA project used only Afridev pumps and advocated for the government to ensure the availability of Afridev spare parts in local markets. Other efforts were made to build partnership with the artisan groups to produce the Afridev spare parts locally. Nira pump is not preferable because spare parts could not be locally produced due to a copyright issue.

4.2. Socio-Economy, Demographic and Administrative Background

Figure 3. Provincial map of Mozambique

The organization of the Mozambique government is: Province (*Provincia*), District (*Distrito*), Posto-Administrativo (*Posto Administrativo*), Communities (*Localidade*) and Streets (*Bairro*). The lowest official leader in the government structure is the Head of Community (*Chief de Localidade*). There are five districts involved in the HAUPA project; only two districts were chosen for evaluation - Balama and Montepuez districts.

Most of the rural roads in the observed districts are made from red clay. Because of this, transportation in the rainy season is more difficult than in the dry. A highway linked Cape Delgado and Niassa provinces reached Montepuez and Balama in the time of project evaluation visits. The road development changed the demography of the rural area. Several remote villages

will suddenly have access to the open road. has been left behind in terms of infrastructure development. Some of the water points were removed due to the road construction, such as happened in one of posto administrative in Balama district. There is no public transport available to reach rural area. The means of transportation is walking, riding privately-owned motor cycles or bikes, and hitch-hiking on any vehicle that comes along, such as cotton company trucks that travel in the area.

Small agricultural holding (*Machamba*) is the main source of livelihood for people in Montepuez and Balama districts (ILO, 2001), and the involvement of women in *machamba* is common (ILO, 2001). In northern areas like in Cabo Delgado Province, *machamba* is very profitable (ILO, 2001). They grow corn, cassavas, potatoes, legumes, and other fruits and vegetables. Cotton is a valuable plant and many people in both districts use cotton field as their main source of livelihood. In most communities, hard cash is available only during the cotton harvest season and collecting monthly contribution fees is significant challenge.

The markets to buy and sell commodities are available at the *posto-administrativo* level. However, spare parts for hand pumps are only available to purchase from a limited number of shops in the district level market. The price of spare parts is not high, but communities must invest time in purchasing them.

The dry season Cabo Delgado Province is from July to December. In Balama District, many of the traditional dug wells are drying during that season and in many communities, this situation turns people to use the water point for their daily needs. Recognizing their need, communities begin to pay monthly contributions again.

Communities in Montepuez District never experience seasonal water difficulties. And compared to Balama District, alternative water sources are more available. The utilization of paid water services in Montepuez District did not relate to the dry season.

The communities who live near water sources that never or rarely dry up or communities that have their own dug wells refuse to pay monthly contribution fees and/or use the water services. Although they knew that the purpose of collecting monthly contribution fee is to buy spare parts as part of maintenance of hand pump. This finding showed that the community may not value the benefit of safe water if the management could not be trusted. This also linked to the low snapshot survey score for transparency and accountability.

Another important factor is the language used in the Cabo Delgado province. Portuguese is the official language of Mozambique but most of the people in the rural areas speak Macuan, the local language; a limited numbers of people in the rural communities speak Portuguese. CARE acknowledged that language was a barrier to achieving the project goal. However, there were a limited number of people with community based experience who could speak Macuan. The partnership with local NGOs, such as AMASI, is indeed crucial.

The religion of most of people in the rural areas of both project area districts is Islam. While many people with a higher degree of education or in leadership positions are Christian.

4.3. OBSERVATION

4.3.1. TYPES OF WATER SOURCES

Dug wells (*Poço*) and boreholes (*Furo*) are the common man-made water sources that are available in communities. In Balama District, there are old wells that were built in 1987-1988 that are still functioning and being used by communities. Some old wells were installed with well-functioning Afridev or Nira Af-85 hand pumps, but old wells with broken hand pumps and covers can also be found. No one remember who was built those wells.

Most of the water points built by the HAUPA project are new boreholes, but some were rehabilitated dug wells. In relatively wet areas, many families have a dug well in their yards. The household's dug wells rarely have covers. The other alternative to a man-made water resource is a

communal dug well. Although often relatively close to household dwellings, the downside is that it takes a longer time to collect water.

The natural water sources that are available in Balama and Montepuez districts are ponds, lakes, and rivers. Some communities are close to natural water resources. Others must walk for hours to fetch water from natural water resources. Demand for water is dependent on the distance of the dwellings from the alternative water sources. The shorter distance to an alternative water sources means less demand for safe water points. The uncovered or unprotected water sources do not fit the criteria of safe water, regardless of the quantities or types of water sources.

4.3.2. TYPES OF HAND PUMPS

The HAUPA project had installed three types of hand pumps that are commonly used in rural water services on the entire African continent: Afridev, Rope Pump (*Bomba diCorda*), and Nira Af-85. All the pumps are easy to install and maintain, and can be installed over a borehole or dug well.

Rope Pump is designed to provide water for small communities or a family; it is not designed to use for a highly output water. The installation process or maintenance of Afridev is simple, but this type of pump needs a trained person to do the installation. The availability of spare parts is a potential problem for Afridev and Nira Af-85 relate to manufacturing issues of these two types of hand pumps. Table 8 provides specific characteristics for each type of pump.

Table 8. Comparison of the types of hand pumps.

Specifications	**Afridev**	**Rope pump**	**Nira Af-85**
Description	A conventional lever action pump	A simple pump features a unique design in which small plastic pistons are lined up on a rope.	A direct action pump for low-lift wells.
Population served	300 persons	70 persons	300 persons

Households	30 – 50 households	3-10 households	30 households
Water consumption	15-20 litres per capita	15-20 litres per capita	15-20 litres per capita
Type of wells	Borehole or dug well	Dug well or borehole	Dug well or borehole
Installation	The installation of the Afridev pump is not difficult and does not require any lifting equipment. It is, however, recommended that a well-trained crew with the necessary skills for installation be employed	Easy to install. It can be done by trained area mechanics. No lifting tackle and no special tools are needed	Easy to install
Maintenance	Reliable, easy to repair by a village caretaker and popular with the communities	A village caretaker is able to perform all maintenance operations required	Excellent potential for community-based services. Only simple tools are needed to pull out the entire pumping element as well as the foot valve and rising main. This pump is reliable and popular with the communities
Local manufacturing	All steel parts of this pump have potential for local manufacturing. Local companies who manufacture PVC-U pipes that know how to process engineering plastics are able to produce the “down-hole components”. Tooling costs are high and therefore the number of manufacturer will be limited.	The Rope pump has excellent potential for local manufacturing	This pump is a protected product and is not intended for local production.

Remarks		A rope pumps is not designed for a high daily output, but rather a family or small community pump. Less than 500 pumps have been distributed in Mozambique	It is designed for heavy-duty use, serving communities of 300 persons

Source: Rural Water Supply Network (www.rwsn.ch)

Realizing that the challenge of sustainability may relate to technology or financial issues, CARE assumed that rope pumps are more suitable for low resource communities. Rope pump bodies and spare parts can be locally produced and the production cost is cheaper compared to other types. The installation process is also less complicated. Rope pump seemed the perfect type to be installed in rural areas. However, CARE partnership with stakeholders like artisans and local polytechnic institutions are not working well and have failed to create markets of rope pump in communities. Currently, CARE only installs Afridev to address the technical problem.

All 13 rope pumps installed in Balama district were broken at the time of visits due to the unavailability of spare parts, although one of the community members also stated that a lack of technical skill was other obstacle. A similar situation was reported in Montepuez district, but the field team had no chance to visit the communities were rope pumps were installed. Thus could not verify the situation in Montepuez.

CARE provided community training to maintain or repair Rope Pumps, but the skilled water committees could not maintain or repair the broken pumps without the availability of the spare parts. Although one of the water committee members contradicted the statement and said they have no capacity to repair pump. Communities sometimes broke the cover of the non-functioning water points to get access to water. Once the cover of the well is open, the water did not meet safe water criteria anymore.

The availability of spare parts is also a principal cause of the non-functioning AFRIDEV and NIRA Af-85 pumps. Another reason for non-functioning of water points was the loss of water sources or the level of damage, which was beyond the level of technical capacity of the water committees or CARE staffs.

4.4. INTERVIEW FINDINGS

The snapshot survey tool was designed to measure governance by quantifying four components: participation, transparency, accountability and inclusiveness. The snapshot surveys were followed up by interviews with the communities whose scores showed them to be outliers. Other qualitative data were gathered from interviewing government officials, from the provincial to the village level, as well as water committee members. Information from interviewing project staff from two INGOs that work in the same area as the HAUPA project supplemented information gathered from other sources.

There are four themes used in this the HAUPA sustainability project evaluation. The findings related to those themes are summarized in Table 9, 10, and 11.

Table 9. Findings related to sustainability themes at the community level.

Governance: - Community satisfaction - The principle of transparency - Conflict between community and water committee - Conflict between community and chief of village	Finance: - Willingness to pay - Flexibility to accept other than cash as payment method - The level of trust of water committee members
Technical: - Types of hand pump - Following the rules of pumping	Environment: - The distance to alternate water sources - Water reserves

technique - Regular maintenance of pumps - No discontinuation of services	- Daily needs

Table 10. Findings related to sustainability themes at the water committee level.

Governance: - The construction process involved the community - Trained water committees - External support - Patron-client relationship: Clear roles and responsibilities of each water committee member	Finance: - Schedule of payments - Transparency - Incentives for water committee members
Technical: - Training - Spare parts availability - Hand pump maintenance - Advance training	Environment: - Clean water points - Availability of alternate water sources

Table 11. Findings related to sustainability themes of government.

Governance: - The National Water Policy as legal guidelines - Program implementation through partnership principles - Core activity is community mobilization training - External support	Finance: - Collaboration or partnership with NGOs to provide water services - Apply regulation for community to contribute and self-financing services
Technical: - Spare parts issues - Hand pump maintenance	Environment: N/A

4.4.1. GOVERNANCE

4.4.1.1. PARTICIPATION

There were no differences in the results for community groups with high and low snapshot survey scores about the process of the first community meeting. Both groups reported that a community meeting was conducted prior to the construction process. The activities during the community meetings were: forming water committees; choosing the type of wells and hand pumps they wanted to install; and making a commitment to make an initial financial contribution for the construction of the water point. The HAUPA project staffs responsible for conducting community meetings were called mobilization teams. They collaborated with officer at the *posto administrativo* level to conduct the first community meeting.

Two other NGOs - Aga Khan and Ingénierie Sans Frontières (ISF) - that operated in the same district also applied similar approaches to implementing water projects in order to comply with government water policy. Therefore, most of the water points supported by INGOs had also conducted a community mobilization meeting, formed a water committee, and required community contributions to build the water points.

CARE built the water points through a third party to ensure the quality of the installation. CARE outsourced the construction through a transparent bidding process to local contractors and hired a professional institution to assess the quality of the water reserve, including the rate of water flows. The laboratory assessment of the water quality aimed to ensure that water points had a sufficient water reserve.

In the HAUPA project, communities were less involved in the construction of boreholes or wells. However, in the process of construction, the communities contributed food, drinking water and accommodations for the builders. Some communities also helped the constructions through labor, but it was not a common practice. Although outsourcing the construction of water points aimed to ensure that no water points had technical difficulties, there were several water points that did not work properly from the beginning and were beyond the repair capacity of not only the water committees but of CARE staff as well. The HAUPA project had not anticipated

this problem in their project design, so further action was needed to replace those water points. Other NGOs, such as ISF, built the water points together with communities; they did it as part of community training on technical skills. Detail information of CARE' community training is in the particular section that explained the process of community mobilization activities.

4.4.1.2. TRANSPARENCY

Communities with high snapshot scores created rules to operate the water points. The rules are included: the operational hours of the water points, a prohibition against taking a bath or washing in the area of the water points, a cleaning schedule for the area of the water point, and good pumping techniques. Other rules related to the monthly contribution payment.

Communities with high snapshot survey scores reported that they elected the water committee members but communities with low snapshot survey scores reported that water committees were selected by the community mobilization team or the chief of the village. The communities accepted the decision because it came from local authorities. If a water committee managed the water point poorly, the community was hesitant to re-elect the water committee members.

Criteria for a water committee member included: that they were trustworthy, had a good reputation in the community; and never had a conflict with other community members. Although they knew that water committee membership was not a permanent position, most of community members did not want to change the membership of the water committees if they were working well.

The water committee members said they had no problems with administrative duties. But that collecting contributions was the greatest challenge. Communities with high snapshot survey scores had well managed water points and water committees that were trusted by the communities.

All communities knew their water committee members and described the different roles and responsibilities of each water committee member. The communities that reported attending a community meeting could explain the issues discussed in the last community meeting. The community also reported whether the water committee had maintained the water points.

Most communities also knew that some of the water committee members had a responsibility for maintaining the hygiene of the water point, but their role was misunderstood by the water committee and the communities. The responsibility of the water committee regarding water point hygiene is to facilitate or coordinate the community to keep the water point free from human and animal pollution, not to do the cleaning tasks themselves. Some communities refused to do the cleaning, because their understanding of the process was that they pay water committees for water services and therefore they feel that the community should not be required to do any cleaning. They believed that the cleaning was the water committee's responsibility. Some of the participants stated that the role of the hygiene promotion subcommittee was to clean the water points and communities can help them voluntarily. The data showed that many community members did not have a sense of ownership but acted as a consumer of paid water services.

One of the follow-up communities had the water committee disbanded by the chief of the community. The chief also changed the rule regarding the method of paying for water services that had previously been agreed upon by the communities, from a monthly contribution to a payment per gallon of water. The chief said that the change of payment method was agreed upon by the communities, but the community members refuted chief's claim. This finding of a conflict between the local authority and community was significant.

None of the water committees gave a regular financial report to the community. Some water committee routinely conducted internal meetings and reporting, or reported to the chief. Communities with high snapshot survey scores said they knew the financial situation related to the water points, although they never saw the financial records. The community said they

believed that the water committees were spending the monthly contribution appropriately because the water points always functioned well.

None of the financial records was complete because the unavailability of hard cash, and because the monthly contribution had to be paid only if the community member utilized the water points. Some water points were utilized only in the dry seasons and at that time the communities paid for the service.

4.4.1.3. ACCOUNTABILITY

For communities with low snapshot survey scores, the number of active water committees decreased over time. However, there were always one or two original water committee members that committed to maintaining the water point, collecting the monthly contribution, and cleaning the water points. Communities with high snapshot survey scores had more committed water committee members. Those water committees performed better by routinely conducting community meetings, collecting the contribution, recording the incomes and expenditures, and conducting hygiene activities. No single water committees had a perfect score due to management issues, such as a lack of availability of meeting minutes or not conducting regular monthly meetings.

As with the findings on transparency, in general, the water committees rarely conducted community meetings. The communities with low scores almost never had a community meeting, and some water committees only conducted internal monthly meeting. CARE stressed the importance of monthly meetings in the training, but the regular monthly meetings only happened if the community was included in the sanitation project. However, even at those meetings the primary topic of discussion was not water and water points, but the new sanitation project.

Most of the communities, including those with high snapshot survey scores, did not know who the person or organization was that they must contact if they had a problem with the water points beyond their capacity to repair.

This is a critical issue to address. There were cases of non-functioning water points that had worked well when they were handed over to the community but that had stopped working after a time. The water committee did mention the name of CARE or AMASI field staff as their contact person in case of problem, and CARE field staff did visit the water points and try to repair them but failed. That was the last effort before the water point was classified as non-functioning.

4.4.1.4. INCLUSIVENESS

Gender equity in Mozambique is one step ahead of other countries on African continent. Mozambique Women's Organization / Organização dos Mulheres de Moçambique (OMM) is a women organization that is involved with many development projects in rural areas in Mozambique (Cochran et al., 1992). Because communities have been sensitized to gender equity issues, they easily accept the national policy of having 50% female membership on water committees. However, females on water committees had little real influence on the decision making process. The female water committee members said that they have active roles in making decisions, but only at the household level.

One example of female leadership was found in Montepuez District, where one of the water committees had a female president and the community expressed their satisfaction with her performance. The president was elected by the community not because she is a woman, but because of her leadership abilities and personality. However, data from this project evaluation does not support a claim that there is a positive relationship between empowering women and a well-managed water committee.

Those responsible for providing water for the family are the women and children; they not only fetch water, but also dig and maintain traditional shallow wells. In some communities the women expressed how they suffered from carrying water from a source far from home. The distance is indeed physically exhausting, but the primary concern is the long time needed to fetch

water. Fetching water from a long distance causes mothers to leave their young children at home attended only by their slightly older siblings.

On the other hand, water is the purview of women in this community. Establishing a water committee to manage water points could be viewed as involving males in a female job and may change the female roles from water providers to customers. This is could be seen as both a positive and negative influence on female empowerment. Female members of water committees rarely have better positions than men as decision makers in water point management.

There were no reports of community members that were excluded from using water due to race or religion. Many communities allowed outsiders to take water from water points as long as they paid for it. An exception was made for senior community members; if older community members lived alone they were given free water services.

4.4.2. COMMUNITY MOBILIZATION ACTIVITIES

Due to the decentralized water program policy, the government gives control and ownership of the water point installation process to communities. The process begins with a community proposing to *posto administrativo* to have a water point installed in their village. The *posto administrativo* sends the request to the district level, and from the district level the request is sent to CARE. The next step is for CARE to send a community mobilization team to conduct community mobilization activities. The community mobilization activities are at the core of the HAUPA project.

The activities which include: a community meeting; on-site training of the village water committee; the first village water committee meeting; and maintenance of community-based water services.

The local NGO partner, AMASI, is responsible for facilitating the community mobilization process. The local government, at least at the *posto administrativo* level,

accompanies the community mobilization team to conduct the community meeting. No CARE water points have been built without first conducting a community meeting.

The purpose of the community meeting is to acquire community commitment for building the paid water services, form village water committees, decide on the type of water points that will be installed, and facilitate community agreement on the cost of fees. Once the village water committee is established, the community mobilization team trains them on site. The training period was a maximum seven days, with one to two days in class and the others for practicing the skills. The water committee was divided into three subgroups: technical skills, administrative and management, and hygiene promotion.

The technical group is trained on knowledge and skills regarding hand pump assembly, maintenance, and minor damage repair. The management group is trained on knowledge and skills for maintaining financial records and reporting, managing receipts, and conducting community meetings. The hygiene promotion team is trained on how to keep the water points from being polluted by man or animal, and how to lead the community in keeping the water points clean.

After training, the village water committees are required to conduct their first community meeting. The main purpose of this meeting is to inform the community about the village water committee responsibilities, collect initial contributions, and set the rules for water point services. Some communities report that the first meeting was supported by the community mobilization team, while some meetings were only facilitated by the newly formed village water committee. There was no clear information provided by the local NGOs about the different procedures. However, there is no clear requirement in the project proposal about the responsibility of supporting the first community meeting conducted by the village water committee.

At the beginning of the project, the water point installation process would not begin until the initial financial contribution was received by CARE. However, in the last year of project implementation, CARE began to build the water points after receiving only the commitment document from the community in order to complete all of the water points on time. There are several new water points locked up by CARE due to the failure of communities to pay the initial contribution.

CARE conducted the technical examination of the potential water point resources to ensure that the quantity and quality of water resources met the safe water specifications. The installation process was given to a third party to ensure that the water points were technically well-functioning. The contribution from the communities in this phase was to provide food and drinking water or hard labor, like digging or mixing the cement.

4.4.3. The Village Water Committee

Rural communities of Mozambique are used to forming community-based organizations. Some examples are the local court system, and, in some area, religious organizations. Though the village water committees were new players in the communities, they were never rejected, but also were not fully embraced. Several village water committee members used to serve in the local court system or in religious organizations.

Although, it is stated in the water policy that all community members have an equal right to be elected as water committee members, the HAUPA projects require that only literate water committees members can be elected. Except for a management sub-group, they are supposed to have some education background, at least grade 5-6.

The water policy determines the number of the water committee members. If there is one water point installed in the community, the water committee must have 12 members, and if there is more than one water point installed in a community, a water committee must consists of 20

members. At the time of the evaluation, many water committees were losing their active members. Only communities who had a high snapshot score had not lost their water committee members since the committee formed. The motivation of the water committee members also decreases after some time; communities assumed that water committee members left because they expected salaries or other incentives to do the activities. The water policy of Mozambique and the HAUPA project intend for the water committee to be a voluntary job and water services management relies heavily on the motivation and good intentions of water committee members. There were no findings that could be used to determine the real motivations or intentions of the active water committee members.

The responsibilities of village water committees are to: conduct community monthly meetings; collect and report monthly contributions; and coordinate the daily cleaning activities. However, no water committees conduct regular monthly community meetings and very few water committees had even irregular community meetings.Many of the water committee had internal monthly meetings and gave reports to the village chiefs rather than to communities. Because in some communities, the establishment of the water committees was seen as a potential threat to the established formal / informal key leader in the community.

4.4.4. WILLINGNESS TO PAY

Similar to the Water Aid sustainability study results, communities have no issues regarding the paid services. Communities' willingness to pay for water services is interdependent with the demand of water services, the satisfaction level of the users, and the community's trust of the water committees.

The result of evaluation identified four relationships between the demands of water services and the willingness to pay:

1) Full time utilization of water points and monthly contributions.

This condition applied to the community with high snapshot surveys score and relates to water committees that had well managed water points. Another similarity was that those communities have no local alternative water resources and invested more than three hours in fetching water from alternative water resources before the installation of the water point.

Those water points had regular check-ups and maintenance and the water committee always had at least one spare part available. The communities have a high level of trust in the water committee's cash management, although they did not have conduct a regular monthly meeting. The water committees could also show contribution records. No discontinuation of services happened in these communities.

Due to the unavailability of cash in the community, the method of payment varied. Some water committees accepted commodities and sold them later. Others postponed payment until harvest time. Therefore, almost no complete records were found.

This situation also applied to one community with a low snapshot survey score. The rule in this community was payment at the time of service. Management was fully controlled by a local official, since he had disbanded the water committee and the daily management was operated by only one respected community member. The community was not satisfied with this situation because they suspected that the family of the local official could access the service at no cost.

2) Full time utilization of water points and free water service

These typed of communities used the water services all the time; however, they refused to pay the monthly contributions. They were willing to collect money when the water points were broken. Some of the community members argued that there was no need to collect a monthly contribution when the water points were functioning. The water committees also rarely conducted monthly meetings, except when water points were broken. Although the water committees did routine maintenance, there were times when the water points were out of service.

3) Part time utilization of water points and contribution where water services were used.

Alternative surface water sources were available in the community. The community used water services in the dry season when the alternative water sources were dry. The committee created an additional rule, which was to lock up for the water points in the rainy/wet season.

4) Refusal to use or pay the water services

The communities refused to use the water services because they were not satisfied with the water quality. They preferred to use the alternative water resource rather than the water points. They argued that using poor quality water ruined their clothes, food, and plants.

There is a tradition related to financial problems called *xitique* was mentioned in the Technical Proposal of the HAUPA project for the Netherland Government (CARE, 2006, unpublished). That tradition was a coping mechanism in the community of the unavailability of hard cash in most of the time. A paper about micro-finance system in Mozambique by Fion de Vletter (ILO,2001) defined *xitique* as a revolving savings and credit funds. In rural area, *xitique* could be taken a form of the exchange of labor or crops, and not cash. This system required a group who trust each other and regularly paying a joint fund (CARE, 2006, unpublished)

4.4.5. RULES AND REGULATION

The common rules for maintaining the water points over time were set up as the result of the community mobilization training. The most common rules had to do with forbidding children from playing with the pumps, and forbidding any community member from taking a bath or washing dishes in the area of wells. Other rules were related to hours of service and dates for collecting the monthly contributions. Some of the community members agreed with the rules, and others did not.

No one ever mentioned the rules of the water policy, except the NGOs and the officer at the provincial level. These rules are critical to understanding the water policy, especially for the

chief of communities. Due to a lack of understanding the of water policy, one of the chief had violated the water policy. In the group interview a community member asked a question to the field team about the correct rules and regulations of water point management. The communities mentioned that they remember that in the first community meeting, they agreed on monthly contributions as the payment method.

4.4.6. Collaboration and Partnership

The HAUPA project was implemented in collaboration with the National Directorate of Water as an extension of the Ministry of Public Works and Housing. There was a limited partnership with the health department at the provincial level but no partnership with the health agency at the community level. A partnership was also developed with technician, such as welders, to address the possibility of interrupted water services due to the lack availability of spare parts. The most important collaboration was with the community to ensure water services were sustained. At the core of the HAUPA project were community mobilization activities.

4.4.7. Project Monitoring and Evaluation

Monitoring and evaluation of water projects in Mozambique has not yet been well developed. Though the National Water Policy mentions that one of government's responsibilities is to monitor water projects, this never happened. All stakeholders of rural water project in Mozambique agreed that water provision should deliver through a community-based approach. This was means that all implementing institutions relied on two main strategies for providing water services in the community: constructing the water points, and strengthened and functioning the water committee. CARE had no contact with the water committees after the community mobilization training. The communities never had any monitoring visit from any stakeholder at the district or sub-district levels. An exception was the villages that included in the CARE sanitation project (LIFECA).

Looking through the project cycle, monitoring and evaluation is the most important step to achieving a community-based project goal. The HAUPA project designed a monitoring and evaluation plan, but did not execute it well. What CARE Mozambique did a WASH project, but the implementation and funding was divided it into two projects with specific content. HAUPA project was he water project, and the sanitation project was the LIFECA project. The HAUPA project was implemented earlier than the LIFECA project. CARE continued working with the same local NGO (AMASI) in Cabo Delgado province. The LIFECA project started in the middle of the HAUPA project, and was implemented in some of the HAUPA project communities. The LIFECA project also partnered with the water committees. These communities had the advantage of the CARE field staffs visits, although their focus changed to promoting behavior relates to sanitation, such as hand washing.

Visiting the communities is a critical aspect of partnership; however, few of the water committees never received a visit after the water point construction was finished. One of water committees stated that they were trained to do theater (role play) to promote health messages to the community, but they did not know how to implement the activities. Most of the water committees were pleased about the evaluation visit, because it meant that CARE still interested in them.

5. DISCUSSION

Communities in the HAUPA project areas suffered not only from using and consuming bad quality water, but the physical burden of fetching water and the loss of time that could had been used for other activities. The benefits of having a reliable water source *near* their dwellings could be the primary reason for the community's eagerness to have paid water services in their area. The findings showed that the majority of the communities did not resist giving initial

contributions in the construction of water points. The true challenge of sustainability is on-going utilization and management after the water points are handed over to the communities.

5.1. SUSTAINABILITY

There are varied definitions of sustainability, but the primary concern is the question of what happens when the donor leaves (Bossert, 1990). Since 1990, international donors have been seriously concerned about continuation of the benefits when the project ends. The provision of water is a very complex process. The nature of water services is part of development programs, but the utilization of safe water contributes enormously to the impact of improving the health status of a country. It is essential for stakeholders, including donors and project staff, to understand the different meaning of *providing* and *constructing* of water services (Abrams, 2000). Without good understanding of this concept, it does not matter how good a sustainability framework is, it is unlikely that the project will hardly achieved its goals.

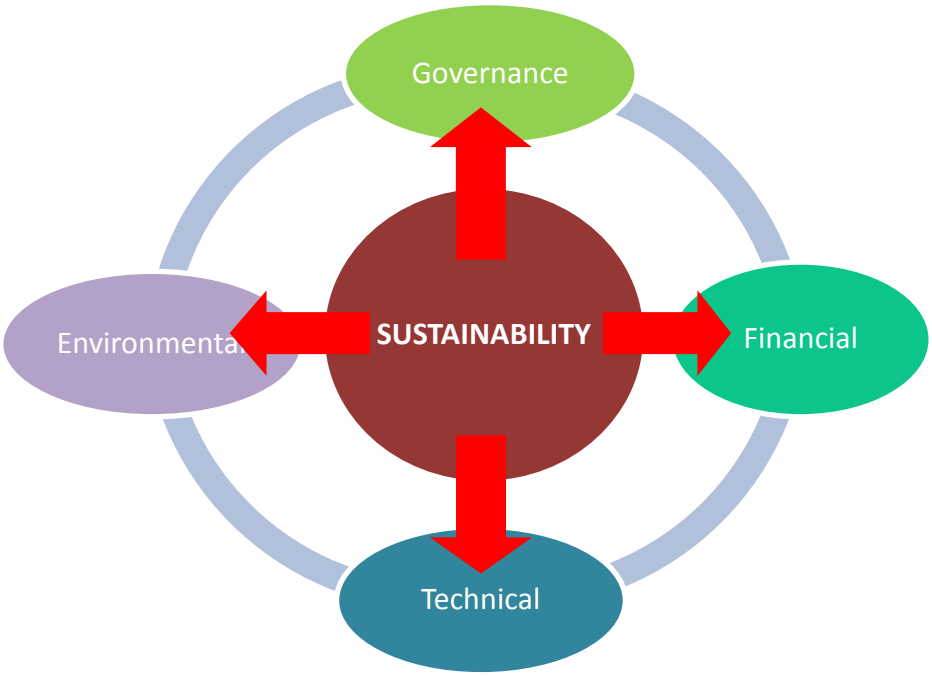

Figure 4. The parameter for sustainability

The design of the HAUPA project evaluation (figure 3.) was proposed with the understanding that governance is one of the elements of sustainability. Other elements are financial, technical, and environmental. The primary focus of the project evaluation was on good governance implications for water service sustainability. On the other hand, the UNDP focused more on governance to improve qualified development.

Those concepts could arise from different definitions of governance. For example, UNESCAP (2011) defines governance as "the process of decision-making and the process by which decisions are implemented (or not implemented)." UNDP (2007) defines governance differently, saying that it is "the exercise of economic, political, and administrative authority to manage a country's affairs at all levels and the means by which states promote social cohesion and integration, and ensure the well-being of their populations. It embraces all methods used to distribute power and manage public resources, and the organizations that shape government and the execution of policy. It encompasses the mechanisms, processes and institutions, through which citizens and group articulate their interests, exercise their legal rights, meet their obligations and resolve their differences."

However, the Asia-Pacific studies series (UNESCAP; UNDP; ADB, 2007) indicates that measuring the progress of MDGs relies on good governance based on sustainability, as the core of evaluation. The report measures the quality of governance based on inclusiveness and equity; participation; transparency; efficiency; effectiveness; subsidiary; adherence to the rule of law; accountability; and sustainability. Therefore, different definitions could create different interpretation of the impact of sustainability of a project. Despite the differences in how to measure sustainability, the government of Mozambique faced bottlenecks to service delivery in selected sectors: public financial management, human resource, and monitoring and evaluation (World Bank, 2011).

Financial aspect of sustainability in the HAUPA projects was interpreted as the community's capacity to self-finance the operation and maintenance of existing services. But capacity of government to replicate a successful program is the fundamental problem that needs immediate actions. The problem is not the community capacity to pay a monthly contribution, but the government's capacity to build or rehabilitated water points in other areas.

5.2. PARTNERSHIP

The evaluation results for the number of non-functioning water points are slightly lower than the national rates at any time. However, 13% of water points functioning with difficulty is a threat to sustainability because those water points may increase the number of non-functioning water points in the areas. Looking back to the installation process, there were no strategies developed to address the problems of non-functioning water points after the builder handed over the water point to the community.

Community participation in the HAUPA project reached the moderate level of Pretty's typologies of participation (Table 4). The community mobilization activities of the HAUPA project reached the level of *functional participation* in the communities. The community mobilizations activities are well designed, effective and efficient for fully involving the community in water management. However, the HAUPA project failed to nurture the on-going process of community mobilization after the installation of the water points was completed.

The Mozambique National Policy indicates that partnership of water projects is done through the Ministry of Public Works and Housing and the National Directorate of Water (DNA). A positive impact of that is that there are clear roles and responsibilities of government agency related to policy-setting, planning, monitoring and reporting on water projects. However, partnerships with agencies whose main concern is to provide infrastructure may have a negative impact on achieving the goal of providing services.

Forming village water committees is very important for a community-based water project. CARE succeeded in establishing, and training the village water committees in their project area. This is also one of the best lessons learned of the HAUPA project. Likewise in the Zami Lazante project developed by Partnership in Health (PIH) in Haiti that has community health workers improving health services for people living with HIV, the water committees are indeed crucial for community-based water services. It is true that existing water committees have few members compared to when they were formed. However, even if only one water committees is active, the water point can continue to function. For example, a community in Balama District, showed that one water committees is enough to make the water points function. The negative impact of the existence of the water committee is that it may decrease ownership by community members. Communities showed a tendency to ignore water committee efforts to engage them in maintaining the water points.

The pay for services norm was easily adopted by the communities. The assumption that the financial aspect is the biggest challenge for sustainability has no strong foundation in Balama and Montepuez districts. Compared to other areas in Mozambique, people in Cabo Delgado have good weather and fertile soil. There is no history of drought or other natural disaster in those areas. The flexibility of payment methods, the trusts of community members and the regular maintenance of water points may improve sustainability.

There are two results of the project evaluation that could be used to measure the sustainability of water services. The results of the interviews showed that the community mobilization activities of the HAUPA project were successful in engaging communities in actively managing the water project, and establishing all the elements stated in the Carter's sustainability framework. But the existence of the non-functioning water points in two of the HAUPA project districts showed that the HAUPA project strategies do not represent a perfect community mobilization approach. The causes of water points " functioning with difficulties"

relate to the type of wells, the management of water points, and the availability of spare parts. Problems of water point management occur due to the lack of community trust in water committees, and the intervention of local authorities. To improve stakeholders' understanding of project goals not only is a high capacity of project management but needed, also a high cultural competency of the project staff at every level.

Although the HAUPA project is designed to address partnerships as an important issue, this project evaluation showed that community mobilization without strong partnership may not empower the community. As Len Abrams said about establishing water services, the HAUPA project intended to provide water services, but construction was misinterpreted as providing water services. This conclusion emerged from the fact that the HAUPA project collaborated with the Office of Public Work only and has not with the health office. Partnership at the community level did not exist after the water point was constructed. Most of the water committees were keen to works in partnership, but there was no obvious understanding about with whom the community would partner in this project.

The community mobilization approach that trains a subgroup of hygiene promoters is a good start for community engagement to change collective behavior regarding safe water. The findings showed that the idea of *safe water* in most communities is not a concern. The training of water committees aimed to empower the committee to fill the gap of knowledge but it did not work because the committee did not understand how to put their knowledge into practice.

When asked to give comments or suggestions for the project evaluation, one of the water committee in Montepuez District said that *they were promised [By the community mobilization team] to meet and share experience with other committees but the event never happened. They trained for "theater" to teach the community how to clean the water point but never practiced because they didn't know how to implement it.*

Providing water service is the government's responsibility, therefore this program should not be interpreted only in the terms of development of water services. The provision of safe water

is a public health program, thus water services should be implemented as an integrated program with the health department. The lack of skilled officers was not a justification for neglecting the monitoring of water services.

There is no clear decision about who is responsible for monitoring and evaluation. The water policy states that it is the responsibility of government, but this part is not well understood. The project staff stated that the aim of the project was to establish new water points, at that were their priority. According to Abrams, it is clear that the project staff's understanding of the goal was to construct water services and not to provide water services. However, this is not completely inaccurate because establishing water services also is one of the project outcomes.

6. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

In conclusion, the HAUPA project evaluation results show a modest impact on sustainability through the use of the project approach. Most of the water points are functioning and utilized by communities, but communities have low ownership levels and are acting like customers.

Community-based management programs to provide basic services are usually seen as the right approach in low resources countries that lack funding and skilled human resources. However, without a good understanding of the project goal by project staff, community-based programs may end once community mobilization activities are completed.

The HAUPA project had two main core project activities to provide water services in rural communities of Mozambique: community mobilization activities and constructing water points. The project staff saw their responsibility as over after completing the two activities. Without a doubt, the evaluation results show that the community mobilization activities utilized a proper approach by engaging whole communities in the early phase of construction of water

points. If water committees have members with a good understanding of management and if communities have real demands for water services, then water services will be sustained through good community-based management.

The majority of the water committee members showed a sense of ownership toward water points greater than that of community members. The ownership of water points may be interpreted in positive and negative ways. The law regarding village water committees was indeed shifting the control over to the community. Although the primary intention is build a bridge between the outsider and the insider, sometimes the intention may be produce the opposite result. An example is in the community that only has one active member of a water committee who continues to collect monthly contributions from the community members who are willing to pay. But without good financial records and an effort to replace water committee members, this situation may produce a different result in the future.

The formation of the water committee is crucial, but the implementation may be influenced by the level of culture competency of the project staff. It was regretted that the *xitique* tradition was not fully explored in the proposal revision of the HAUPA project. That tradition could be established as a best practice to engage a community to form a trusted water committee and transparent system of collecting monthly contribution.

The data from the evaluation showed that basic services, such as the provision of water, require independent management at the community level that is free from any influence rooted in power control issues. All community members should have the same rights and responsibilities to maintain water points. Dependency on local authority needs to gradually decrease and full control needs to shift to the community.

In the HAUPA project, the well managed water points relied on the personal characteristics of the water committee members, and it will take a long time to see communal

behavior change based on individual behavior change without partnerships with external stakeholders, such as government, technicians, donor agencies, etc. The HAUPA project succeeded in initiating community engagement in community-based water projects through community mobilization activities. But the findings indicate that the HAUPA project must focus more on maintenance and water point management, and less on hygiene promotion. The benefit of consuming safe water was assumed to be common knowledge. However, only one water committee expressed concern about the community continuously consuming unsafe surface water near their dwellings. Improving community participation is only one of the key factors of sustainability; external support is still crucial to establishing sustainability in a longer period of time.

The ultimate impact of access to safe water is decreasing mortality and morbidity. Expanding a partnership not only with the Ministry of Public Works and Housing, but with the Ministry of Health may improve communities' understanding of utilization of water services.

6.2. RECOMMENDATION

The limited project time, staff, and budget of a community-based water project represents obstacles that could be addressed by using another approach of community-based management and targeting sustainability at the highest level. Applying the community-based participatory action research approach may provide different result because the communities are involved in the initial assessments, developing project plan, project implementation and project evaluation.

The water committee is the new institution at community level. Some communities fortunately had good performance of water committees, others did not. Activities to strengthen the water committee and/or explore the local tradition that can empower the community such as *xitique* may develop a new unique community-based program in Mozambique, as an alternative to adopting the western approach of community-based management such as Community-based

Participatory Action Research (CBPAR) that claimed as the promising approach in development and or health project.

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ANNEXES

Annexes 1. Snapshot survey questionnaire

Scheme Functionality and Governance Snapshot

Title of Person filling in form _____ Date _____
Name of scheme _____
List components of scheme (e.g. water point domestic/run off water for irrigation/irrigation system/clothes washing/cattle trough/shower/other)
_____
Community name _____ District: _____ Country _____
Who constructed the scheme _____ Who renovated where relevant _____
Who set up the committee _____ Who has strengthened committee more recently _____
Other background points _____

Where respondents do not know the answer or the answer is not applicable please score O. Answers to be provided in the shaded boxes

I)	**Age of water-point (in yrs)**				
II)	**Main investment made in scheme by:**	1 = CARE 2= Other NGO	3= Government 4=Other	If other, specify:	
III)	**What is the current functionality status?**	1= Not functioning	2= Functioning though difficulties	3= Functioning well	
Iv)	**If not functioning at all (i.e. community not getting water)**	1= more than one month	2= between 1 wk and 1 month	3= less than 1 week	
v)	**If functioning but not well please specify (*can put down several numbers*)**	1= significant leakages affects water supply 2= small leakages doesn't affect water supply	3= some parts broken affects water service 4 = some parts broken but doesn't affect water service	5= problems with attendants/or committee affects service 6= problems with attendants/or committee doesn't affect service	

Note where not functioning or not functioning well for technical reasons provide details at the end of this form

Note T = Transparency; A = Accountability; P = Participation; I = Inclusiveness

			1	2	3	
1	P	**What was the consultation like regarding the initial prioritization of what service was needed?**	Community members were not consulted in the prioritization of services	Limited consultations with some community members were made in prioritization of services	A wide set of community members were significantly consulted and they influenced services in named ways	
2	P	**What was the involvement of community members in discussions and decisions?**	No community participation in discussions and decisions at all levels of the process	Low and patchy participation in discussions and decisions by community members at all levels of the process	High participation of community members at all stages in discussions and named influence on decision making	
3	P	**What was the contribution of labor, material, leadership and skills?**	No community contributions in any form at all levels	Community contributed in some form	High community contributions at all levels of the project, examples can be given by interviewees	
4	T	**What is the situation regarding the existence and functionality of bylaw, guidelines, internal articles, etc?**	The committee[1] functions without bylaw or guidelines	The committee has bylaws or articles, etc but they are not functional	The committee has bylaws or articles which can be quoted or shown if on paper and it follows these in named decision making	
5	A	**What is the situation regarding the existence of Committee?**	The scheme has no committees	The scheme has a designated committee but people are unsure who is involved and what they do	The scheme has a committee that meets and that others know about	
6	T	**What is the process regarding committee and office-bearer elections?**	The committee and office bearers were selected not elected	It is unclear, mixture of selection and community voice	The committee and office bearers were elected by the community	

[1] Table refers to committee but please consider other structure e.g. customary institution where such an institution is overseeing the service.

7	T	**What level of knowledge about roles and responsibilities is there at community and committee level?**	Community members and committee members do not know their roles and responsibilities	Community members and the committee have some knowledge about their roles and responsibilities	Community members and committee know their roles and responsibilities and can explain these to others	
8	A	**What is the situation regarding committee meetings?**	committee meetings have never been held	The committee held a few meetings in the past	The committee holds meetings regularly and the last one can be stated or better still minutes seen	
9	A	**What is the situation regarding committee re-election?**	There is no agreed term of office	The situation is unclear	There are agreed terms of office, regular meetings to re-elect committee members and office bearers have occurred for older schemes, the last elections can be recalled	
10	P	**What is the situation regarding power to replace ineffective committee members?**	Community members have no knowledge that they can replace ineffective committee as a whole or members any time	Community members have some information that they can replace ineffective committees or members any time	Community members know their right to replace ineffective committee or members any time and can talk about when they have exercised their right	
11	I	**How are decisions made at community and committee level?**	Decision making is usually the role of an individual	Few members participate in decision making	Most if not all members take part inclusively in decision making, a point agreed to by all present	
12	A	**What is the process of committee report back to wider community?**	There is no committee report back to the wider community	There is some committee report back to the wider community	There is a systematic and named system in place and being used for committee report back to the wider community	
13	T	**What knowledge is there about the regular income (total community**	Members of the community have no	Members of the community has little or outdated information	Members of the community have up-to-date information about the income and	

		contributions) and expenditures (e.g. spare parts) related to the scheme?	information about the regular, e.g. monthly income and expenditure of the scheme	about the income and expenditure of the scheme	expenditure of the scheme (recall of date information shared and or overall status, even if approximate figures not remembered)	
14	T	**What is the situation regarding committee knowledge and practice of regular record keeping?**	The committee does not have the knowledge of how to keep records	The committee has some knowledge of record keeping but this is incomplete or not followed in practice	The committee has the knowledge and keeps records which have been seen	
15	I	**What is the committee Composition like?**	All members are men	Women constitute 50 or less	Women constitute more than half	
16	I	**What is the role of women in decision making?**	Women are not involved in decision making at all levels	Women take part in few occasions in decision making	Women have significant role in decision making, examples can be given	
17	I	**What is the situation regarding diversity of committee and office bearers?** (e.g. gender, age, ethnicity, clan, religion, wealth, other?)	There is no diversity of representation in committees and office-bearers	Committee and office-bearers are not very representative	Committee and office-bearers are representatives of different named interest groups in the community are represented	
18	I	**What groups are excluded/marginalized regarding access to services?** (e.g. ethnicity, clan, religion, wealth, disability/chronic illness, other vulnerable groups?)	There are community members excluded /marginalized from using the services	No community members are excluded but a few do not use the services	All community members use the services equally and equitably and there are initiatives in place to help those who might not otherwise be able to access services (e.g. for the poorest, disabled, etc)	

19	P	**What training and capacity is in place regarding basic maintenance of the scheme?**	Committee members have never taken any training and never been involved in scheme maintenance	Committee members have taken some training and have a limited knowledge of basic scheme maintenance but this is patchy	Committee members have taken training and have demonstrated an ability to maintain the scheme when it ceased functioning	
20	A	**Who should be contacted in case of trouble related to services (e.g. relevant district departments or other)**	The committee has no clear information about who to contact in case of any problem beyond the local capacity	The committee has some information on who to contact incase of any problem beyond the local capacity	The committee has clear information on who to contact in case of any problems beyond local capacity and have accessed this information to address the problem encountered	

Annexes 2. Interviews Guidelines

Assessing Water Point Sustainability in Northern Mozambique

Goal: To determine key factors influencing the sustainability of water points in Northern Mozambique to allow CARE to better construct or rehabilitate water points in the future.

Pilot Questions

1. How does the relationship between the local government, NGOs, and the community impact the long-term sustainability of water points in Northern Mozambique?
2. How does a community's demand for, and availability of, water impact the sustainability of its water points in Northern Mozambique?
3. How do the way communities make decisions impact the sustainability of water points in Northern Mozambique?
4. What factors contribute to the establishment of community ownership of water points in Northern Mozambique?
5. How does a community's availability of resources impact the sustainability of its water point(s) in Northern Mozambique?
6. How does the degree of gender equality influence the sustainability of water points in Northern Mozambique?

1. Focus Group Discussions

Remember to separate men and women for the FGDs.

Introductory Remarks and Informed Consent:

I would like to thank you all for coming today. My name is _____ and my assistant is _____

A few days ago, some people came and looked at how well your community's water points are working. Out of all of the points examined, one of your points [**say which point]** was working **very well** / **not working well at all. [Provide more details on our snapshot results.]** We would like to see why this water point has **worked so well / is not longer working (or not worked well)**[*]**.**

To do this, over the next few weeks our research team will be conducting group discussions with men and women in two districts as part of a CARE project to determine what makes improved water points sustainable. As you know, water points are created, or rehabilitated, frequently in this district, but sometimes they stop working and are never fixed. We feel that the best method to increase sustainability of water points in your community is to talk to you, and other men and women, about your opinions and experiences of planning, developing, maintaining, and using your water point(s). Even if you have never been involved in the development or maintenance of the water point, your views and opinions are very valuable to us.

Let me tell you a little about how we will conduct the group discussion today. As we have already told you, your participation in this group is voluntary, so if you prefer not to be part of this discussion you are completely free to leave. However we value all of your opinions and hope that you will stay and share your views. Whatever we discussed today will be confidential. We will use your answers

[*] Choose the correct phrase based on the governance snapshot evaluation. The water points that will be followed up with will be those that have been most sustainable and those that have been least sustainable.

only for this research project. Ultimately, your answers will help your community, and other communities, have longer lasting water supplies.

I would like to say that there are no right or wrong answers. We will simply be asking for your opinions and experiences, so please feel comfortable to say what you really think. We would like to hear as many different points of views as possible, so feel free to disagree with someone else and share your own view, but please also respect the views of others. We will not be going around the room, just join in when you have something to say or you want to respond to someone else's point. However, it is also important that only one person talks at a time so that we don't miss anything on the recording.

During the discussion __[person's name]___ will be taking notes and reminding me if I forgot to ask something. However, so that s/he does not have to worry about writing down every word, we would also like to record the whole discussion. The reason for recording is so that we don't miss anything that is said and so that the rest of the research team who are not here can also hear your views exactly. Please do not be concerned about this. Our discussion will remain completely confidential; we will use only first names in the discussion, the information will only be used for this research project only, and the recording will be securely stored so that it is not accessible to anyone outside the research team.

Is it Ok with everyone to record this discussion? (Check that all consent to recording).

This discussion will probably last about 2 hours or so.

Are there any questions before we start?

Introduction to Each Other

As an introduction, let's go around so that you can introduce yourselves to each other and to me.

- Tell us whether you are currently working and what type of work you do. *(I.e. Farmer? Vendor? Logger? Fisherman?)* and what is the highest level of education you have received?
- Can you describe the main sources of employment for men and women in this area?

Topic 1: Water Points in the Community

- How many water points do people use in your community?
- Do you use different water points in the wet and dry season? Probe: What is the reason?
- Map the water points. Note:
    - How long each water point has been in use (rehabilitated, newly constructed, etc)?
    - Which water points function now? In the wet season? In the dry season?
    - Do you know who (if anyone) provided you with, or rehabilitated, this (these) water point(s)? (If so, who?)
- Have the group point to the specific water point that we are discussing. Circle it.

Topic 2. Ownership and Functionality

- Do you pay for any upkeep of water? If so, how much? How frequently?
- How do you feel about paying to have clean water? *Probe:* How much would you be able to pay?
- Whose responsibility is it to provide clean water? *Probe:* What are the roles of the responsible parties in providing clean water?
- Who maintains this water point [the specific point that we are discussing]? Why do these people maintain it?
- Must people receive training to fix the point? *If so: How can people receive it? Who provides this training?*
- How were you involved in the construction or rehabilitation of the water point, or in its current maintenance? *Probe:* How have people 'donated' their time or resources to develop/maintain the point?
    - If people have donated their time/resources, why do they do so?
    - Do men and women participate equally in maintenance of water points?
    - Were women involved/consulted in the planning of the water point?

Topic 3. Collaboration

- Who is in charge of making decisions for the community (especially regarding construction/maintenance of water points)? *Probe*: NGO, government, committee, etc.
- Has a water committee been established in your village? *If the answer is 'Yes' then probe*: Could you give me the names of people who have been elected for water committee? When was their last meeting?
- What is the responsibility of the Water Committee?
- How does the Water Committee communicate with the community? How, if at all, do they report back to the community?
- Are any women members of the committee? If so, what role do they play?
- How do you feel about the level of women involvement with the water committee?
- In general, what do you feel about women making decisions? What about women in leadership roles?
- Is the organization that made the water point involved in your community? If so, how are they engaged?

Topic 4. The Need and Demand and Availability for Water

- Who collects the water in your community?
- How many jerry cans do you use per day?
- Do you feel the amount of water you can collect is sufficient to meet your needs?
- Other than the people in your community, are there people from other village using your community's water sources? The specific water point?
- How long must you walk to access water from this point? [Time or Km] What about in the wet season? In the dry season?
- How long must you wait in line to collect water?

Topic 5. Focus Group Perceptions of Water Point Sustainability

- [If this water point is functional]: What has been the most crucial factor in keeping this water point functional?
- [If this water point is not functional]: What has been the biggest barrier to keeping this water point functional?
- Do you think your water point is sustainable? *Explain sustainable: Do you think the water point is lasting well? Do you think it will last for a long time?*
- What do you think contributes to the sustainability of water points in general? To this water point?
- What is your concerns do you have about this water point?

Closing Questions

- Overall, are you satisfied with your community's water? Why or why not? *(Probe: Complaints about quantity of water, accessibility to water, quality of water, including taste, smell, water purity, etc)*
- How is the party responsible for water fulfilling its responsibilities to your community?

Closing Remarks: Thank you so much for your time. We appreciate your participation. We have learned so much from you, and we look forward to using your insight to better the water situation in your community and surrounding communities. Thank you for all of your help!

2. In-Depth Interviews (IDI)

IDI for district government officials

Introduction:

Recently, CARE Mozambique staff have been assessing how well water points in your district are working. **[Provide some basic details of the initial sustainability survey, if they are available.]** As you know, water points are created, or rehabilitated, frequently in this district, but sometimes they stop working and are never fixed. Our goal now is to determine the factors that influence the sustainability of the water points—how long the water points last and how regularly they are maintained.

To do this, over the next few weeks our research team will be interviewing community government officials/water committee members and community leaders and conducting focus group discussions with villagers with the goal of determining what makes improved water points sustainable. In addition, we would appreciate your specific insight into the government perspectives on the water situation in this district. As a member of the Ministry of Water for this district, we know that you are very aware of the water policies and regulations and government perspectives regarding water provision. We would be very appreciative to learn more about this from you.

The questions we have for you will ask about the government policies, programs, and challenges regarding water provision, specifically in this district. In addition, there are questions that ask for the government's perspective on the sustainability of water points. Even if you do not know the answer to a question, your views and opinions are very valuable to us. I would like to say that there are no right or wrong answers. We will simply be asking for what you feel to be true, and your opinions, so please feel comfortable to say what you think.

Your participation in this interview is completely voluntary, so if you prefer not to be part of this discussion you are free to not answer the question and/or ask us to stop the interview. However we value all of your opinions and hope that you will stay and share your views. Whatever we discussed today will be confidential. We will use your answers only for this research project. Ultimately, your answers will help your fellow citizens to have longer lasting water supplies.

I will be taking notes and so that we do not have to worry about writing down every word, we would also like to record the whole interview. The reason for recording is so that we don't miss anything that is said and so that the rest of the research team who are not here can also hear your views exactly. Please do not be concerned about this. Our discussion will remain completely confidential; we will use only first names in the discussion, the information will only be used for this research project only, and the recording will be securely stored so that it is not accessible to anyone outside the research team.

The interview will last approximately 30-45 minutes. We will take as little time as possible.

Do you agree to participate in this interview? _____ OK, thank you so much. Let us begin!

1. **Policies**:
    a. What policies and regulations exist regarding water provision for communities in this district?
    b. Are there policies on payment for water? (Who decides if people pay? Is there a maximum or minimum price that can be charged to the community?)
2. **Responsibility for water**:
    a. Who is responsible for providing water to communities?
    b. What is the government's role with regards to water provision in this district?
3. **NGO Collaboration**:
    a. Sometimes NGOs are involved with providing water points for communities. What does the government feel about this?
    b. Explain the collaboration between NGOs and the government (national, provincial, district and community level)?
4. **Sustainability**:
    a. How do you define a sustainable improved water source?

b. How do you believe the government can help enhance the sustainability of water sources?
c. What does the government need to improve the sustainability of water points?

5. **Closing Questions**: **Improvements and Challenges**
    a. What do you perceive to be the biggest improvements in the past five years for water provision?
    b. What do you perceive to be the biggest challenges to providing water? What barriers exist?
    c. What solutions do you see to the problem?

IDI for Officials in Community (includes Water Committee ppl and/or other governing official)

Introduction:

A few days ago, some people came and looked at how well your community's water points are working. Out of all of the points examined in a couple of districts, one of your points [**say which point]** was working **very well** / **not working well at all. [Provide more details on our snapshot results.]** We would like to see why this water point has **worked so well / is not longer working (or not worked well)**[*]**.**

To do this, over the next few weeks our research team will be interviewing government officials/water committee members and community leaders in two districts as part of a CARE project to determine what makes improved water points sustainable. As you know, water points are created, or rehabilitated, frequently in this district, but sometimes they stop working and are never fixed. We feel that the best method to increase sustainability of water points in your community is to talk to you, and gain specific insight into the water situation in this community. As a local governing official and/or a member of the Water Committee, we know that you are more aware of the water policies and regulations in this community, in addition to the details about the water point [name/location]. We would be appreciative to learn more about this situation from you.

The questions we have for you will ask about your opinions and experiences of planning, developing, maintaining, and monitoring the water point(s) in this community, specifically the [name/location] point. Even if you do not know the answer to a question, your views and opinions are very valuable to us. I would like to say that there are no right or wrong answers. We will simply be asking for your opinions and experiences, so please feel comfortable to say what you really think.

Your participation in this interview is completely voluntary, so if you prefer not to be part of this discussion you are free to not answer the question and/or ask us to stop the interview. However we value all of your opinions and hope that you will stay and share your views. Whatever we discussed today will be confidential. We will use your answers only for this research project. Ultimately, your answers will help your community, and other communities, have longer lasting water supplies.

I will be taking notes and so that we do not have to worry about writing down every word, we would also like to record the whole interview. The reason for recording is so that we don't miss anything that is said and so that the rest of the research team who are not here can also hear your views exactly. Please do not be concerned about this. Our discussion will remain completely confidential; we will use only first names in the discussion, the information will only be used for this research project only, and the recording will be securely stored so that it is not accessible to anyone outside the research team.

The interview will take approximately one hour, depending on your answers.

Do you agree to participate in this interview? _____ OK, thank you so much. Let us begin!

Background information

No. of Interview
Highest level of education.
What is your position and where are you working?
How long have you lived in this village?

Opening Questions

How long have you been in a leadership role in this community?
How many communities do you have responsibility for?
How many people are in this community?
What does your work entail?
What are your responsibilities in this position?
What training have you had concerning water management and/or leadership/management?

1] General Questions about Water in the Community

What water problems has your community experienced in the past five years? (Drought, floods, etc)

[*] Choose the correct phrase based on the governance snapshot evaluation. The water points that will be followed up with will be those that have been most sustainable and those that have been least sustainable.

What policies or regulations shape how your community accesses water?
What efforts do you / your office make to ensure that these policies are enforced?

2] How do you monitor your water points?

- Is there a Water Committee? Could you provide me the name of community members? What have some of the recent committee activities or actions been?
- How frequently is the point monitored? Who monitors it? What does this entail? (How do they monitor it?)

3] How does the community maintain the water source?

- Who fixes the water point if it is broken (or soon to be broken)? (Community people/professionals?)
    - Why do these people maintain it?
- Do you need technical assistance to fix it? If so, from whom do you acquire this expert assistance?
- If training is required, are people in your community trained to fix it? If so: Who provides this training?
- Where do you procure the parts needed to fix the water point?
- How do you pay for maintenance?

4] What other water points exist in your community?

- What water point did people rely on before this water point was constructed or rehabilitated? What type of point was it?
- What do you rely on if/when this water is broken?
- Do you get water from the same place in the rainy season and the dry season?
- In your mind, how does this water point compare to other water points in your community?

5] Availability of Water

- How many water sources are there for the community?
- Do you ever witness, hear of, or mediate conflict over the water? If so, what is the reason for this conflict?
    - *Probe:* Proximity of water points, quality of water, ease of access, location (on someone's land, etc)

6] Collaboration

- Was the water point constructed or rehabilitated?
- Who was involved with the initial construction? (Government or NGO? Name of Org?)
    - What did the outside organization contribute?
    - What did the community contribute?
- What kind of relationship does your community have with the organization that built the water source (NGO, government, religious institution, etc)?
- How is this organization (gov or NGO) currently involved with the community?
- What kind of collaboration exists between the local government and NGOs?

7] How do you perceive this community's ownership of the water point?

- Do you collect pay money for water (i.e. to help maintain the water point)?

If yes:

- How frequently do you collect money?
- How much do you collect from each household?
- How do you determine how much money to collect? (Why do you collect this much?)

If no: How do you acquire the resources to upkeep the water point? (Support from NGO, government, etc)

***For yes or no*: Could you please show us your records?**

8] What kind of collaboration exists between the government office, outside NGOs, and stakeholders?

- Whose responsibility is it to provide clean water for the community?
- How do you feel if an outside, NGO provides water for the community instead of the government?
- If an outside organization provides its support for a water project, what does the government feel its role should be?

Closing Question: Do you have any further comments or suggestions regarding water in your community?

IDI for non-government leader in community

Introduction:

A few days ago, some people came and looked at how well your community's water points are working. Out of all of the points examined in a couple of districts, one of your points [**say which point]** was working **very well** / **not working well at all. [Provide more details on our snapshot results.]** We would like to see why this water point has **worked so well / is not longer working (or not worked well)**[*]**.**

To do this, over the next few weeks our research team will be interviewing government officials/water committee members and community leaders in two districts as part of a CARE project to determine what makes improved water points sustainable. As you know, water points are created, or rehabilitated, frequently in this district, but sometimes they stop working and are never fixed. We feel that the best method to increase sustainability of water points in your community is to talk to you, and gain specific insight into the water situation in this community. As a local governing official and/or a member of the Water Committee, we know that you are more aware of the water policies and regulations in this community, in addition to the details about the water point [name/location]. We would be appreciative to learn more about this situation from you.

The questions we have for you will ask about your opinions and experiences of planning, developing, maintaining, and monitoring the water point(s) in this community, specifically the [name/location] water point. Even if you do not know the answer to a question, your views and opinions are very valuable to us. I would like to say that there are no right or wrong answers. We will simply be asking for your opinions and experiences, so please feel comfortable to say what you really think.

Your participation in this interview is completely voluntary, so if you prefer not to be part of this discussion you are free to not answer the question and/or ask us to stop the interview. However we value all of your opinions and hope that you will stay and share your views. Whatever we discussed today will be confidential. We will use your answers only for this research project. Ultimately, your answers will help your community, and other communities, have longer lasting water supplies.

I will be taking notes and so that we do not have to worry about writing down every word, we would also like to record the whole interview. The reason for recording is so that we don't miss anything that is said and so that the rest of the research team who are not here can also hear your views exactly. Please do not be concerned about this. Our discussion will remain completely confidential; we will use only first names in the discussion, the information will only be used for this research project only, and the recording will be securely stored so that it is not accessible to anyone outside the research team.

The interview will take approximately one hour, depending on your answers.

Do you agree to participate in this interview? _____ OK, thank you so much. Let us begin!

Background information

No. of Interview
Highest level of education.
What is your occupation and where are you working?
How long have you lived in this village?

Opening Questions

How long have you been in a leadership role in this community?
What water problems has your community experienced in the past five years? (Drought, floods, etc)

1] What is your opinion on the Water Committee?

- What do you know about the Water Committee?

[*] Choose the correct phrase based on the governance snapshot evaluation. The water points that will be followed up with will be those that have been most sustainable and those that have been least sutainable.

- What are its responsibilities?
- Do you feel it fulfills its responsibilities?

2] How does the community maintain the water source?

- Who fixes the water point if it is broken (or soon to be broken)? (Community people or outside professionals?)
    - Why do these people maintain it?
- In your opinion, do local people need training to fix the water point? What kind of training do they need? Do people ever receive such training? If so, who has provided this training?

3] What other water points exist in your community?

- What do you rely on if/when this water is broken? What kind of water point is it?
- Do you get water from the same place in the rainy season and the dry season? (If not, where do you get water in these seasons?)
- In your mind, how does this water point compare to other water points in your community?

4] Availability of Water

- Do you ever witness, hear of, or mediate conflict over the water? If so, what is the reason for this conflict?

Probe: Proximity of water points, quality of water, ease of access, location (on someone's land, etc)

5] Collaboration

- Was the community involved with the initial planning and construction or rehabilitation of this water point?
- How have men contribute to this process? How have women contributed to this process?
- Are you satisfied with your amount, and the community's amount, of participation in this process?

6] How do you perceive this community's ownership of the water point?

- Whose responsibility is it to provide clean water?
    - *Probe:* What are the roles of the responsible parties in providing clean water?
- Do you pay for any upkeep of water? If so, how much, and how frequently?
- How do you feel about paying to have clean water?
    - *Probe:* How much do you think a household would be able to pay? How much would a household be willing to pay?
- How involved do you perceive community members being in making decisions about water?
- How does the Water Committee involve the community in, and report back to the community, about the decisions that they have made?

Closing Question: Satisfaction and Suggestions

- What is your opinion about water and water management in this community?
    - What is good about it?