

District-wide Community Participation and
Training: PEC Zonal Case Study 

Charles Pendly and Ana Lucia Obiols

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Authors

Charles Pendly

Ana Lucia Obiols

Design and layout

Cristina Martínez: martinez@irc.nl



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ABBREVIATIONS

CapManEx	Capital Maintenance Expenditure
CATS	Community Approach to Total Sanitation
CLTS	Community-Led Total Sanitation
DNA	<i>Direcção Nacional de Água</i> (National Directorate of Water, Mozambique)
DPOPH	<i>Direcção Provincial de Obras Públicas e Habitação</i> (Provincial Directorate of Public Works , Mozambique)
EAS	<i>Empresa de Area Social</i> (Social Contractor, Mozambique)
IOB	Policy and Operations Evaluation Department (The Netherlands)
IRC	IRC International Water and Sanitation Centre
JMP	Joint Monitoring Programme (of the WHO and UNICEF)
MICOA	<i>Ministério para a Coordenação da Acção Ambiental</i> (Ministry for the Coordination of Environmental Action, Mozambique)
MIPAR	<i>Manual de Implementação de Projectos de Água Rural</i> (Implementation Manual for Rural Water Supply, Mozambique)
MOPH	<i>Ministério de Obras Públicas e Habitação</i> (Ministry of Public Works and Housing, Mozambique)
MTN	Mozambican currency, the Metical
NGOs	Non-governmental organisations
ODF	Open defecation free (area)
ODF + ODF Plus:	Open defecation free and safe sanitation
OMI	One Million Initiative
O&M	Operations and maintenance
PEC	<i>Participação e Educação Comunitária</i> (Community Participation and Education, Mozambique)
PES	<i>Plano Económico e Social</i> (Economic and Social Plan, Mozambique)
PESA-ASR	<i>Plano Estratégico do Sector de Águas – Água e Saneamento Rural</i> (Water Sector Strategic Plan – Rural Water and Sanitation, Mozambique)
PESOD	<i>Plano Económico e Social e Orcamento Distrital</i> (District Budget and Economic and Social Plan, Mozambique)
PIA	<i>Plano de Implementacao Anual</i> (Annual Implementation Plan, Mozambique)
PRONASAR	<i>Programa Nacional de Água e Saneamento Rural</i> (National Program of Sanitation and Rural Water, Mozambique)
QUIBB	<i>Questionário de Indicadores Básicos de Bem Estar</i> (Wellbeing Survey)
RWSS	Rural water supply and sanitation

SDPIs	<i>Serviços Distritais de Planificação e Infraestrutura</i> (District Services for Planning and Infrastructure, Mozambique)
SEED	<i>Sociedade de Engenharia e Desenvolvimento Lda</i> (local consultancy firm, Mozambique)
UNICEF	United Nations Children’s Fund
WASH	Water, sanitation and hygiene
WHO	World Health Organization
WSP	World Bank Water and Sanitation Programme

EXECUTIVE SUMMARY

This report presents the findings from a study of district-wide approaches to implementing rural water supply and sanitation activities, known as PEC Zonal, in the One Million Initiative (OMI). The study aimed to distil lessons relevant to sustainable service delivery in rural water supply, sanitation and hygiene (WASH) to inform the revision of the Rural Water Supply Implementation Manual (MIPAR) and the *Direcção Nacional de Águas's* (DNA) Annual Implementation Plan (PIA). This study addressed the following questions:

- What can be learnt from innovations such as PEC Zonal in order to scale up more effective WASH implementation approaches and practices?
- What are the gaps in PEC Zonal that need to be addressed in order to achieve sustainability consistent with Mozambique's rural water supply and sanitation (RWSS) policy and strategy framework?
- What is needed to improve effective implementation and bridge the gaps in programmatic service delivery in RWSS?

To answer these questions, a review of relevant data and literature, field visits, interviews with key informants, a qualitative assessment and a gap analysis were carried out.

The study found that PEC Zonal can contribute to the delivery of sustainable WASH services in several ways, including:

- Enabling economies of scale to aggregate demand for spare parts and artisans and mechanics' services.
- Involving and capacitating service authorities at the district and sub-district levels and service providers at the community level
- Serving as a framework for a more harmonised and integrated approach to service delivery
- Facilitating post-construction support and monitoring, including tracking routine maintenance and repairs, latrine construction and ODF status. For example, a manual database introduced by PEC Zonal encourages peer-to-peer competitiveness and provides information to sub-district, district, provincial and national levels to support decision making by identifying issues and corrective measures.

The assessment found that PEC Zonal showed a good to strong relationship with the following building blocks towards sustainable service delivery:

- Professionalisation of community management.
- Increased recognition and promotion of alternative service provider options.
- Post-construction monitoring and support to service providers.
- Capacity support to decentralised government (service authorities).
- Learning and sharing of experience.

A number of gaps between a standalone project context and a sector-wide approach to service delivery were also identified, including the need for:

- Alternative technological options for deeper water tables and larger communities to promote routine maintenance.
- Better regulation of water and sanitation services and service providers.
- Financial planning frameworks that include full life-cycle costs, including recurrent costs.

-
- Asset management including updated inventories of facilities and financial forecasting and clearly defined ownership of assets
 - Developing benchmarks for services and performance of service providers.

To bridge these gaps, a number of recommendations for improving programme implementation and moving toward a sector-wide service delivery approach are presented, including:

Commercialisation of the supply chain for spare parts and repair services. Project and programmatic RWSS can work with local entrepreneurs to improve their technical and business skills; identify appropriate levels for support; conduct market surveys and studies on commercialisation of spare parts supply to identify viable business packages; and identify and promote additional businesses that can supply handpumps and related products at competitive prices.

Institutionalisation and professionalisation of the Community Cluster Management Model (*Comité Mãe*) including a shift from ad hoc volunteer-based community water and sanitation committees to paid committee members with legal status and registration at district or sub-district levels, and standardised accounting and financial reporting systems.

Application of OMI's management model to other rural communities that have sources with technical problems or larger, more densely populated settlements. *Comité Mãe* helps overcome the imbalances between communities by realising economies of scale, improving access to spare parts and technical assistance and access to capital for higher levels of service where boreholes have sufficient yields.

Integration of participatory planning processes and a demand responsive approach within OMI and the RWSS sub-sector to ensure that community's discerned priorities are based on clear eligibility criteria.

Support provision to water and sanitation thematic groups (collaborative forums) for information sharing, harmonising strategies and approaches, and improving coordination at provincial and district levels to support district governments and other stakeholders in planning and monitoring.

1 INTRODUCTION

The *Direcção Nacional de Água* (DNA) is responsible for the implementation of the *Programa Nacional de Abastecimento de Água e Saneamento Rural* (PRONASAR) which was officially launched in March 2010 and legally established by decree 258/2010 on 30 December 2010.

PRONASAR is the framework for implementing the RWSS Strategic Plan (*Plano Estratégico do Sector de Águas – Água e Saneamento Rural*, PESA-ASR) 2006-2015 which was developed to reach the Millennium Development Goals' (MDG) target of 70 per cent coverage of rural water supply and 50 per cent coverage of rural sanitation. PRONASAR also addresses aid harmonisation and institutional reforms in the RWSS sub-sector, with particular focus on capacity development at district and local levels.

The four key components of PRONASAR are:

- Support to sustainable increase in rural water supply and sanitation (RWSS) coverage;
- Development of appropriate technologies and management models for RWSS;
- Capacity building and human resource development in the RWSS sub-sector; and
- Support to decentralised planning, management, monitoring and financing of RWSS activities

2 PURPOSE OF THE CASE STUDY

Two case study initiatives were undertaken by DNA to identify approaches that enhance the sustainability of water and sanitation services within the framework of the Community-Based Management Model.

The first initiative, supported by the Water and Sanitation Program (WSP) of the World Bank, was to study water supply systems that have been working effectively for more than five years¹.

In partnership with UNICEF Mozambique, IRC International Water and Sanitation Centre (IRC) built on this work to support the development of four case studies² from OMI, supported by the Water Services That Last, or Triple-S³, programme.

These case studies distilled lessons and experiences from rural water and sanitation activities in Sofala, Tete and Manica provinces in central Mozambique, which were commissioned and handed over to communities in 2008, but where post-construction support activities are still in progress.

The four case studies were:

1. Community participation and training at district level (PEC Zonal)
2. Community-Led Total Sanitation (CLTS)
3. Contract management of service providers

¹ "Lições de sustentabilidade emergentes"Reforçando a sustentabilidade da água e saneamento rural em Moçambique: Aprendizagem, documentação e aplicação prática.

² Projects in which improved infrastructure were recently handed over to communities, and have been running for two to five years.

³ More information on Triple-S is available at www.waterservicesthatlast.org.

4. The sustainability check

The purpose of the case studies was to identify lessons learnt and offer recommendations to PRONASAR for the revision of manuals (e.g., the Rural Water Implementation Manual, *Manual de Implementação de Programas de Água Rural - MIPAR*), and to provide guidance on how to move from standalone WASH projects and programmes to integrated and harmonised initiatives that build the capacity to deliver WASH services that last.

This case study showcases one of the four innovative features of OMI—the Participação e Educação Comunitária (PEC). It examines district-wide community participation and training approach known as PEC Zonal. While PEC Zonal does include water, hygiene and sanitation activities—hygiene and sanitation are addressed in more detail in a subsequent case study⁴.

3 METHODOLOGY

A gap analysis was applied to identify lessons and recommendations. Innovations such as PEC Zonal implemented through the OMI were analysed against international findings, RWSS sub-sector policies and findings from sustainability cases studies supported by DNA and WSP. Lessons with the potential to be replicated and/ or scaled up have been identified.

3.1 ANALYTICAL FRAMEWORK

Defining levels of service in rural water supply involves an assessment of factors such as water quality, quantity, accessibility and reliability (Moriarty, et al., 2010). Defining sanitation service levels involves an assessment of indicators related to use, accessibility, reliability and environmental protection (Potter, et al., 2011). These indicators can be used to define service levels ranging from none-to-basic, improved and highly improved. It was however beyond the scope of the present study to assess these service levels against these indicators. National standards for the basic level of rural water and sanitation services, as shown below, were used.

⁴ See Pendly, C. and Obiols, A.L., 2013. Learning from Innovation: One Million Initiative in Mozambique, Community-Led Total Sanitation Case Study. The Hague: IRC International Water and Sanitation Centre.

TABLE 1: MINIMUM LEVELS OF SERVICE IN MOZAMBIQUE⁵

	MOZAMBIKAN STANDARDS	INTERNATIONAL INNOVATION: BASIC LEVEL OF SERVICE
Rural water supply	A protected dug well or borehole equipped with handpump, serving 300 persons (about 60 families) within a 500 metre radius (30 minute walking time back and forth and queuing time).	People access a minimum of 20 lpcd of acceptable quality water from an improved source spending no more than 30 minutes per day. (Moriarty, et al., 2011).
Rural sanitation	Improved pit latrine (an improved latrine using local materials) with wall, roof, privacy, lid to avoid human contact with faeces and handwashing facilities. Promotion of hygiene practices and sanitary education at family and community levels.	All household members have reasonable access to and use a safe, clean facility, with maintenance provisions and non-problematic environmental impact or safe disposal of sludge (Potter, et al., 2011).

Source: DNA, 2012.

The definition of sustainability of WASH services found below was used in this analysis:

Sustainability is about whether or not WASH services and good hygiene practices continue to work and deliver benefits based on the capacity of a local service provider, responding to peoples' perceptions and willingness and ability to pay for a desired level of services over time. No time limit is set on those continued services, behaviour changes and outcomes. In other words, sustainability is about lasting benefits achieved through the continued improvement and enjoyment of water supply and sanitation services and hygiene practices (adapted from Carter, 2010).

An added five elements of sustainability of WASH services were used for the analysis:

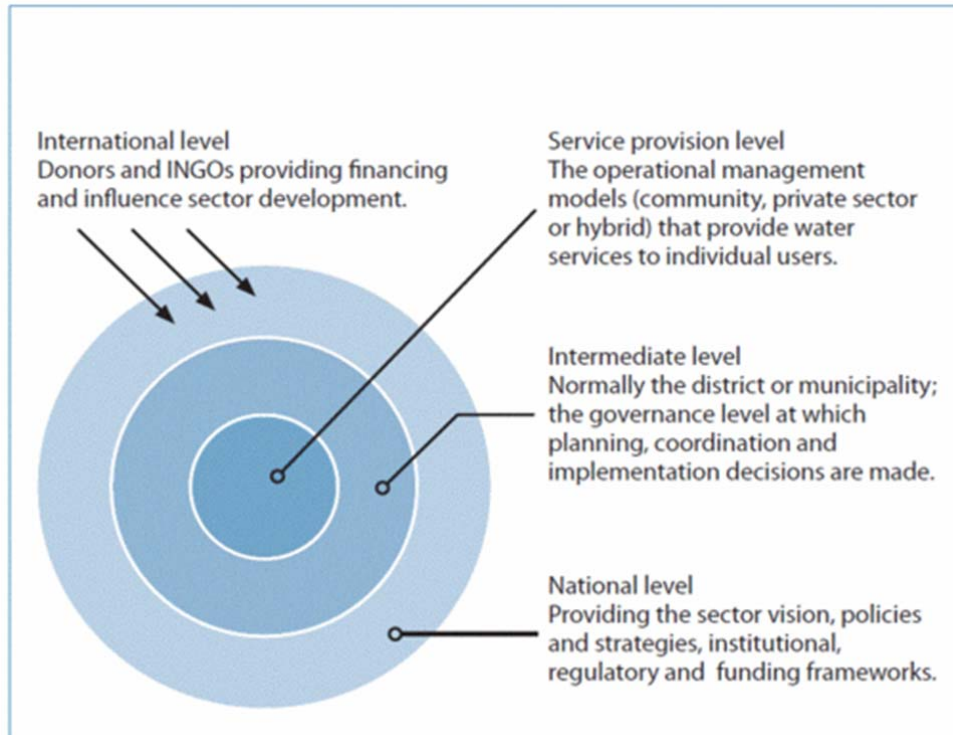
- Technical/ environmental factors related to keeping the infrastructure work properly⁶.
- Financial factors related to ensuring availability of funds to keep the service running.
- Social/ community factors to make users confident, motivated and satisfied with the services.
- Governance/ institutional factors related to an enabling environment to support and regulate service provision.
- Service provision factors include skills, systems and tools required to keep the service running.

Each of these factors is assessed against the service delivery approach depicted in Figure 1. A focus on sustainable service delivery broadens the scope of analysis from numbers of facilities provided and people served to an analysis of the roles and functions of stakeholders at different levels to ensure the sustainability of services. In Figure 1 the service delivery approach is shown by level, i.e., **service provision** (infrastructure and management model); **service authority** (governance, planning and regulation); **enabling environment – national level** (sector policy and strategy); and the **international level** (providing financing and supporting sector development).

⁵ OMI uses the national policy of each water point supplying 500 users. The recent change in policy specifies one handpump per 300 users (DNA, 2012).

⁶ Environmental factors were integrated with technical factors according to the technology used, e.g., boreholes with handpumps. This technology has low impact on water resources. The environmental factors that were most important were water quality and depth of water table.

FIGURE 1: SERVICE DELIVERY APPROACH



Source: http://www.waterservicesthatlast.org/resources/concepts_tools/service_delivery_approach

4 DATA COLLECTION

4.1 ANALYSIS

Desk review: The analysis included a review of documentation from sustainability checks, baseline studies, mid-term impact reviews and evaluations, strategy papers and research related to OMI⁷. Information gathered was also used to assess the efficiency and effectiveness of NGOs and contractors.

Field work: A qualitative analysis of information collected through field visits and interviews with key stakeholders—including district governments, NGOs/ *Empresas de Areas Social* (EAS), artisan associations, local mechanics and communities—was undertaken to identify the outcomes, achievements and constraints to delivering sustainable services. Two of the 18 programme districts were selected: one district was identified by UNICEF as reflecting best practice, and the second was selected randomly to identify constraints in achieving the sustainability of WASH services.

Within each district, three different localities were selected, each with different technical and social characteristics, e.g., different water table depths, households located closer to or further from main roads, availability of transportation, and communication networks.

Six households were randomly selected in each community and interviewed about WASH practices. A focus group discussion (FGD) was conducted with users of protected water sources⁸ in each community

⁷ Data in this case study was provided by UNICEF.

⁸ This included protected water sources not provided by OMI as PEC Zonal includes all water sources in a given district.

or at least those who were available at the time of the interview. Information from household interviews and FGDs was used to frame discussion with water and sanitation committees for a better understanding of issues highlighted by community members. Additional water sources were visited to assess the accuracy of data on handpump functionality.

5 THE ONE MILLION INITIATIVE

OMI is a seven-year (2006–2013) UNICEF–Government of The Netherlands (GoN)-funded partnership on water, sanitation and hygiene that is being implemented in 18 districts in Mozambique’s Manica, Sofala and Tete provinces (See Figure 2.) OMI supports the Government of Mozambique (GoM) in achieving MDG targets of increasing sustainable access to water supply and sanitation, as well as achieving other MDG goals on poverty alleviation, reduction in infant mortality, improved access to basic education, gender equality and HIV/ AIDS.

FIGURE 2: LOCATIONS OF OMI

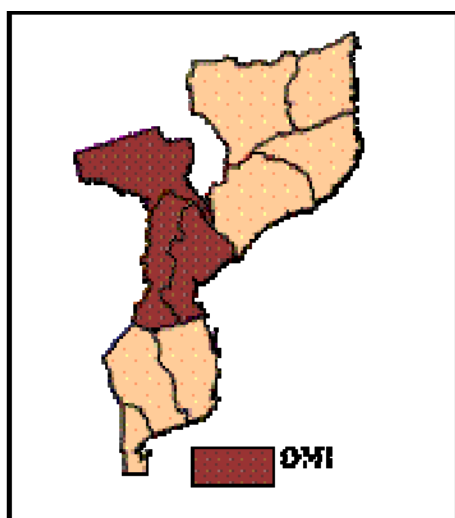


Table 2 shows expected outputs by the end of OMI in 2013, and what was achieved by the end of 2011.

TABLE 2: EXPECTED OUTPUTS AND RESULTS OF OMI	
EXPECTED OUTPUTS	RESULTS
One million people use safe drinking water from new sources	771,507 users from 1,470 new sources and 10 small pipe systems
200,000 people use safe drinking water from rehabilitated sources	200,000 users of 324 rehabilitated sources
One million people use adequate sanitation facilities	1,210,759 people using hygienic sanitation facilities, 250,020 self-constructed household latrines in 679 ODF villages, including 58 ODF+
1.2 million people adopt appropriate hygiene practices	1,210,759 people with appropriate hygiene practices such as handwashing with soap or ash

EXPECTED OUTPUTS	RESULTS
400 primary schools (with a total of 140,000 pupils) use appropriate drinking water, sanitation and hygiene facilities	214 primary schools with handpumps, benefiting 74,900 learners, and 101 schools with adequate sanitation complexes benefitting 35,350 learners and their teachers
18 districts have strengthened technical and management capacities for planning, coordination and implementation of water supply, sanitation and hygiene education programmes	The sustainability score increased from 54% to 82% from 2008-2011, reflecting increased capacity of community organisations, local private sector support and district government support for water infrastructure service delivery

Source: UNICEF, 2012a.

OMI comprises four main interventions, including:

Water Supply

Boreholes with handpumps are the main technology. Alternative technologies (e.g., mini reticulated systems) are implemented in areas with difficult hydrogeological conditions. Variations of the community management model for boreholes with handpumps and private operators for mini-pipe systems are used.

Sanitation and hygiene education

Focuses on community self-analysis and joint decision making for behaviour change and promoting ODF communities. The community approach to total sanitation (CATS) combines the CLTS approach with an award scheme for recognition of ODF communities.

Hygiene and sanitation in schools

School-based interventions are gender sensitive and address the water, sanitation and hygiene needs of girls by constructing water supplies and latrines for girls, boys and teachers using a CLTS approach. When adapted to schools, the approach is referred to as School-Led Total Sanitation.

Capacity building

Creating an enabling environment for sector development through strengthening capacity at the community, district, provincial and national levels, and supporting spare parts networks and private and public sector capacities.

OMI strengthens linkages between the private providers, NGOs and provincial and district governments by:

- Involving NGOs and social consultants in PEC activities, with districts as the target area to ensure sustainability of water points.
- Developing outcome-based contracts with private contractors for feasibility studies, siting, drilling and supervision.

Sustainability depends on local management capacity, support from service providers and a supportive policy environment. OMI's draft sustainability strategy (UNICEF, 2012b), which starts with a community's demand for water and sanitation services using hygiene awareness, employs a holistic approach of: engagement with provincial authorities to create capacity at district level and to strengthen the supply of spare parts; introduction of bottom-up multi-level monitoring systems; and promotion of contractual agreements between water committees and local artisans and mechanics.

5.1 POLICY FRAMEWORK

PEC Zonal conforms to national sector policy and strategic guidelines in seven main ways, including:

- Providing a participatory, people-centred development and demand responsive approach ensuring that communities and schools benefit from assuming leadership and responsibility for O&M of improved facilities.
- Taking an integrated WASH approach for education in communities and schools.
- Covering all protected water sources in the district, stimulating the formation of community water and sanitation committees, and reviving non-functioning ones.
- Encouraging private sector participation and involving and building capacity of local mechanics, artisans and vendors of spare parts.
- Supporting decentralisation through capacity building activities that benefit provincial, district and sub-district level government officials, service providers and communities.
- building, providing technical assistance to districts, monitoring for sustainability, spare parts supply chain, organising local service providers, and improving quality of construction works involving all stakeholders.
- Promoting learning and adaptation through regular and systematic monitoring, and organising follow-up activities to refine strategies, activities and roles.

6 PEC ZONAL

6.1 BACKGROUND AND APPROACH

According to the WHO-UNICEF Joint Monitoring Programme (JMP) in 2010 only 21 per cent and 9 per cent of the population in Mozambique had access to improved water and sanitation facilities, respectively. Significant disparity was found between urban and rural coverage: 29 per cent of the rural population had access to protected water sources compared with 77 per cent at the national level. For sanitation, only five per cent of the population in rural areas used improved sanitation facilities compared with 21 per cent at national level. According to UNICEF's (2009) water, sanitation and hygiene baseline study, only Sussundenga district in Manica province was above the national average in 2007⁹. In OMI districts, 11 per cent of the population used protected water sources, and two per cent used improved sanitation facilities.

PEC Zonal is the main approach to implementing software activities in OMI through local NGOs/EASs. PEC Zonal evolved from traditional Community Participation and Training, known as PEC, implemented only during planning and construction activities in communities with new or rehabilitated water sources.

PEC Zonal includes:

- Organising community information and awareness-raising activities.
- Facilitating a participatory planning process that is gender sensitive and inclusive in decision making.
- Supporting community structures responsible for the O&M of WASH facilities using the community management model.

⁹ District results are not statistically significant at national level.

- Promoting improved WASH practices and hygiene behaviour change.
- Training water and sanitation committees and maintenance groups in O&M of WASH services.
- Strengthening local service providers that support community-managed water sources by providing technical assistance for major repairs, building latrines, selling spare parts, and post-construction monitoring and support to water and sanitation committees, spare parts supply chains, local mechanics and artisans.

Two-year outcome-based contracts between the district government and NGOs/ EASs for implementing PEC Zonal are revised annually on performance. Contractual arrangements include quarterly payments contingent on achievement of outcomes. NGOs/ EASs are required to implement software activities in all components and phases of OMI (see Table 4.) NGOs/ EASs have been active in all target districts from the start of OMI in 2008.

TABLE 3: OMI PROGRAMME COMPONENTS AND PHASES		
COMPONENT	IMPLEMENTATION PHASE	POST-CONSTRUCTION PHASE
Community rural water supply	Promotion and awareness raising Demand creation Facilitating community organisation, planning and decision making on the selection of type of services Establishing gender-balanced water committees and community mechanisms for cost-sharing and O&M of water sources	Community mechanisms for cost sharing and O&M of water facilities Revitalising water committees for water points not built by OMI Capacity building of local mechanics and local vendors Monitoring water service performance
Community rural sanitation	Triggering sessions at community level Capacity building of local leaders and activists on sanitation and hygienic use of latrines	Capacity building of local artisans, setting up demonstration centres and constructing latrines Monitoring hygiene and sanitation practices and facilities
Hygiene education	Water, hygiene and sanitation promotion Promoting handwashing facilities and hygienic use of latrines	Monitoring hygiene practices and facilities
School sanitation and hygiene	SLTS triggering sessions in schools and communities for hygiene and sanitation promotion, linking schools with communities; key messages include handwashing, appropriate faeces disposal and latrine maintenance Monitoring hygiene practices	Monitoring hygiene practices and facilities

Source: Own elaboration, 2013.

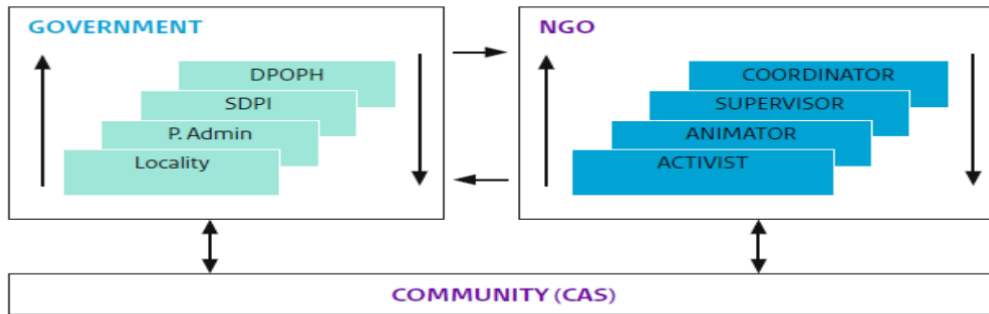
6.2 PROJECT LEVEL COORDINATION

The PEC Zonal team comprises two main groups—the consultancy group and the community group. The consultancy group links to the *Direcção Provincial de Obras Públicas e Habitação* (DPOPH) at provincial level, and the *Serviços Distritais de Planificação de Infraestruturas* (SDPI) at district level. The

community group links to the administrative post and locality at the sub-district level and communities (See Figure 3).

The consultancy group is responsible for quarterly planning of activities according to contractual indicators and guidelines for implementation and coordination with the district government. The community group consists of local activists responsible for activities at community, locality and administrative post levels such as communication and training of new or revitalised water and sanitation committees. It plays an important role in collecting information on the performance of water and sanitation services and handpump breakdowns.

FIGURE 3: NGO AND DISTRICT GOVERNMENT COORDINATION MECHANISM



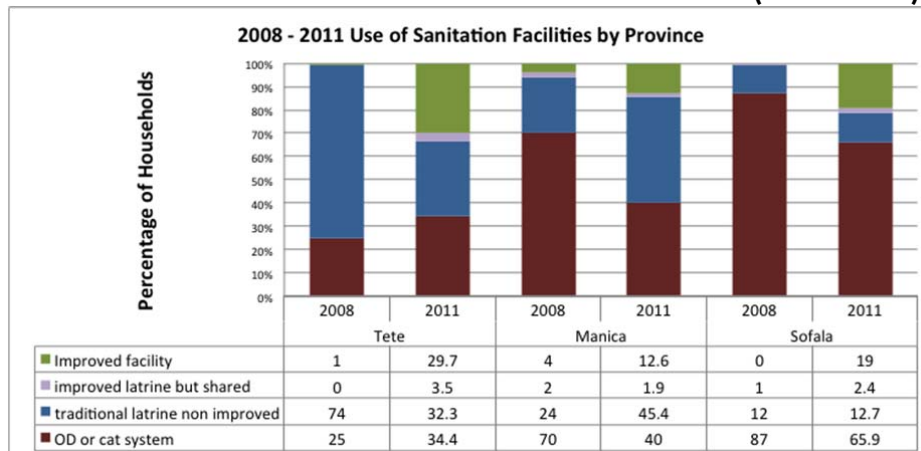
Source: IOB and UNICEF, 2011.

7 WHAT HAS BEEN ACHIEVED?

7.1 IMPROVED ACCESS AND USE

Between 2008 and 2011, the use of improved sanitation facilities increased from an average of 1.35 per cent of the population in the three target provinces to 21.15 per cent, according to the UNICEF’s (2009) OMI baseline study covering 2008 and the DNA’s (2011) PRONASAR baseline survey. Based on sustainability checks conducted by both studies, the sustainability score of water infrastructure improved from 54 per cent to 82 per cent between 2008 and 2011. This includes households advancing from traditional to improved latrines (See Figure 4.)

FIGURE 4: USE OF SANITATION FACILITIES BY PROVINCE (2008-2011)



Source: UNICEF, DNA, 2011.

OMI rehabilitated 392 water points, reaching some 200,000 beneficiaries (at 500 users per borehole according to recent national standards). At the end of 2011 there were 1,470 new water points with handpumps and ten small piped systems. Recent data from UNICEF (2012) showed a total of 1,023,075 beneficiaries.

PEC Zonal activities included CLTS and hygiene promotion, which resulted in the construction of 1,210,759 latrines. Other achievements include 250,020 self-constructed household latrines in 679 ODF villages, including 58 ODF Plus¹⁰ villages, and hygiene practices such as handwashing with soap or ash, and two localities with 36 communities declared ODF in 2011.

PEC Zonal also offered SLTS in 214 primary schools with water points with handpumps, which benefited 74,900 students, and 101 schools with sanitation complexes which benefited 35,350 students and teachers. In 2011, 235 schools became ODF.

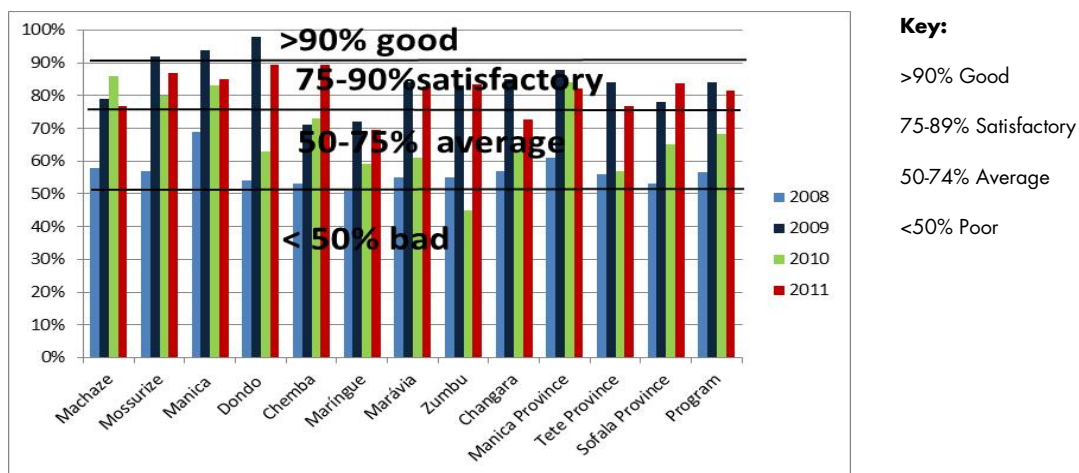
7.2 CAPACITY BUILDING

PEC Zonal aims to create and/ or strengthen the management of new and rehabilitated water points, the capacity of the private sector to provide post-construction support, and to monitor service provision in the 18 OMI districts. Repair time was reduced from weeks to less than six days. The functionality of handpumps was 80 per cent, with only ten water committees not being able to repair their pumps, mainly due to technical problems with the pump (DHV, 2011).

As part of its sustainability strategy, OMI introduced annual monitoring of key indicators of sustainability, called the sustainability check, to identify corrective actions to improve OMI's strategies, activities and results. The indicators are quantified, and an overall sustainability score is used to compare trends over time. The sustainability score improved from 54 per cent in 2008 to 82 per cent in 2011.

Sustainability scores vary annually (See Figure 5), but show an increasing trend between 2008 and 2011.

FIGURE 5: SUSTAINABILITY SCORES (2008-2011)



Source: DHV, 2012.

¹⁰ Adopting the safe sanitation concept in 2011, the project implemented a pilot in 58 ODF communities to reach ODF PLUS status. ODF PLUS is obtained by households that upgrade their traditional latrines to an improved (traditional) latrine.

8 LESSONS LEARNT

8.1 INNOVATIVE FEATURES OF PEC ZONAL

8.1.1 Three-part supply chain

With an increase in the number of handpumps per district—from an average of 130 pumps in 2007 to 200 pumps in 2011—the demand for spare parts is also expected to increase. To meet increased demand, a three-part supply chain was identified to provide spare parts and skilled labour for major repairs.

Part one introduced preventative maintenance plans, in association with district authorities, to promote the purchase of spare parts from local vendors. Three months was the recommended interval for changing rubber and plastic parts. But in reality these parts are only changed when they wear out.

Part two supported local artisans and mechanics associations. District governments contracted local mechanics to rehabilitate existing water sources and artisans to construct public latrines using agreed procurement procedures. PEC Zonal originally focused on improving skills to undertake major repairs, construct latrines and repair and rehabilitate boreholes. Subsequently, business plans to include spare parts, latrine slabs, cement blocks and handwashing facilities, were prepared. Two contracts for mechanics and artisans were introduced: one with districts and the other with communities.

Part three created a supply chain. It established a demonstration centre at administrative posts to provide spare parts and sanitation products near communities. Mobile vendors were also engaged, as well as local mechanics, local artisans and kiosks at the sub-district level.

Achievements of PEC Zonal activities aimed at promoting sustainability included:

- In 2008, artisan's associations were contracted to assess rehabilitation work on existing pumps and to construct institutional latrines. There are currently 100 mechanics in target districts with two mechanics per administrative post and 58 spare parts stores. SEED's (2010) sustainability check found that only 12.5 per cent of communities reported the presence of an artisan association. In 2011, 87 per cent of communities reported contacting a mechanic for major repairs (DHV, 2012).
- In 2010, spare parts for 67 per cent of handpumps were procured from local vendors in the district capital, 9 per cent from the provincial capital, and 16 per cent from other vendors. Field work found that communities also obtained spare parts from neighbouring districts, the provincial capital, or from truck drivers that carry spare parts from Maputo (Mugabe, 2012). In 2012, there were 53 spare parts vendors, with an average of two vendors per administrative post.
- In 2010, 33 per cent of handpumps installed by OMI served over 500 users each, well above their design capacity (IOB and UNICEF, 2010). Studies in Inhambane province showed that the higher the number of users, the more was spent on repairs (Obiols and Baumann, 2009). This was confirmed by the annual sustainability check, which showed that the cost of repairs was higher than the income from users (DHV, 2012). For the other 66 per cent of handpumps, water and sanitation committees undertook preventative maintenance, thus reducing the demand for spare parts.
- Interviews during field visits revealed that mobile vendors (local mechanics or artisans) had stopped selling spare parts to communities due to delays in payment, which affected their cash flow and undermined their relationship with vendors. Low demand made some retailers discontinue stocking spare parts.

8.1.2 Use of community funds

Paying water fees is becoming increasingly common in OMI districts. On average, users pay MTN 5-20 (€ 0.12-0.5) per month and consider these charges reasonable (IOB and UNICEF, 2010).

After a decrease in the sustainability score (based on sustainability check performed) from 84 per cent in 2009 to 68 per cent in 2010 (SEED, 2010), a revised strategy focused on the analysis and dissemination of experience from communities that used water fees productively. The productive use of

water fees can, in the long run, help cover operation and maintenance expenditure costs and accumulate capital towards renewal, rehabilitation, replacement and upgrade of facilities. This capital is also referred to as Capital Maintenance Expenditure (CapManEx)¹¹.

Some communities near larger towns opened an account in commercial banks to ensure security and transparency and to earn interest. Use of water fee funds per district is found in Table 4.

TABLE 4: HOW WATER AND SANITATION COMMITTEES USE WATER FEES	
DISTRICT	USE OF WATER FEE FUNDS
Manica	Bank account
Guro	Contribution on animals WHAT DOES THIS MEAN?
Guro	Productive use of water sold to collect additional funds for O&M NOT CLEAR
Angónia	
Gorongosa	Low cost spare parts from Maputo
Changara	Credit schemes for local entrepreneurs

Source: UNICEF, 2012c

To ensure safekeeping and prevent theft or misuse of funds due to the lack of commercial banks in rural areas, some communities established alternative ways of safekeeping. Funds are either held at the local administrative office or by a trusted businessman; invested in livestock that can be sold when cash is needed; and are made available as loans for community members access.

Although communities have little or no experience with micro-credit, income generating activities or revolving funds, these above is considered more secure and transparent ways of using funds collected.

8.1.3 Demand creation and willingness to pay

The national water policy (2007) stipulates that water is both a social and an economic good. It places emphasis on the willingness of community members to pay, while recognising that not all have the capacity. PEC Zonal aims to create demand and increase willingness to pay recurrent costs for repairs and spare parts, labour, local materials and maintenance of handpumps and latrines, and the purchase of soap.

All participants in focus groups interviewed for this study reported that exceptions were made for vulnerable individuals and households. Community members were found to be aware of the need to take care of elderly and disadvantaged people by ensuring access to and use of infrastructure without payment or by providing assistance in building or accessing latrines.

Only one out of 12 water and sanitation committees was found to have clear rules and procedures that deal with non-payment of water fees. The remaining 11 reported that this was problematic because social norms and cultural values are sometimes stronger than the need to maintain water systems.

Focus groups identified the following factors that influence willingness to pay:

- **Distance to improved water facilities.** PEC Zonal allows selection from up to three alternative drilling sites.

¹¹ CapManEx is a life-cycle cost component that covers asset renewal, replacement and rehabilitation (IRC, 2010).

- **Strong local leadership.** Community members reported that clear messages from the local leadership supports PEC activities, e.g., using protected water sources and payment of water fees.
- **Peer pressure.** Social aspiration serves as a motivation to maintain latrines and handpumps. Implementation of the manual database¹² at community level has been effective in encouraging competition among communities that can, if monitored after OMI withdraws, maintain competitiveness and peer pressure to keep systems running.
- **Clear rules and sanctions.** Perceived lack of fairness in contributions potentially jeopardises willingness to pay water fees. While recognising the need to take care of elderly and the disadvantaged, community members reported that a lack of clear rules and consequences for non-payment resulted in widespread use of water without payment.
- **Facilities respond to perceived needs.** The greater the perceived benefit, the higher the motivation is to keep paying for improved water and sanitation services. Reduced time for collecting water was noted as a key benefit.

In 2010, 79 per cent of communities benefiting from a new or rehabilitated water source were paying water fees. When they also received sanitation interventions, 92 per cent of communities paid water fees (IOB and UNICEF, 2010). In 2011, 65 per cent of communities had a collection system for water fees, and 88 per cent kept clear records. However, safekeeping of funds due to the lack of banks in rural areas remains a challenge (DHV, 2012).

8.1.4 CLTS and behaviour change¹³

OMI shifted from using PHAST to the Community Approach to Total Sanitation (CATS), which combined Community Led Total Sanitation (CLTS) and an award/ prize system for ODF communities. After three months, 34 of 173 communities triggered had achieved ODF status, with 49,822 self-constructed latrines, mostly traditional pit latrines.

An evaluation carried out by WSP (Godfrey, 2009) identified recommendations for scaling up sanitation behaviour change to national level through CLTS. Recommendations included building the capacity of master trainers at provincial and district level and of local staff at community level; promoting improved traditional latrines with a lid to prevent flies from entering the pit; promoting construction of improved latrines by local artisans; and involving district planning and infrastructure (SDPI) and health and education departments.

Contrary to expectations, the impact of CLTS continued to be high even when the prize system was considerably reduced. In 2009, 151 communities achieved ODF status. In 2010, 248 communities became ODF and in 2011 an additional 246 communities had achieved ODF status. By the end of 2011, OMI had already exceeded its targets: reaching 1,210,759 people with mostly traditional improved latrines (UNICEF, 2012b).

In 2010 DNA introduced the concept of safe sanitation to encourage households to move up the sanitation technology ladder and provided guidelines to ensure that traditional improved latrines separated faeces from human contact¹⁴.

¹² The manual database is a hand-written flipchart used at community, locality and administrative post levels to monitor water and sanitation indicators.

¹³ More detailed lessons are documented in a CLTS Case Study written by the same authors. See Pendly, C. and Obiols, A.L., 2013. Learning from Innovation: One Million Initiative in Mozambique, Community-Led Total Sanitation Case Study. The Hague: IRC International Water and Sanitation Centre.

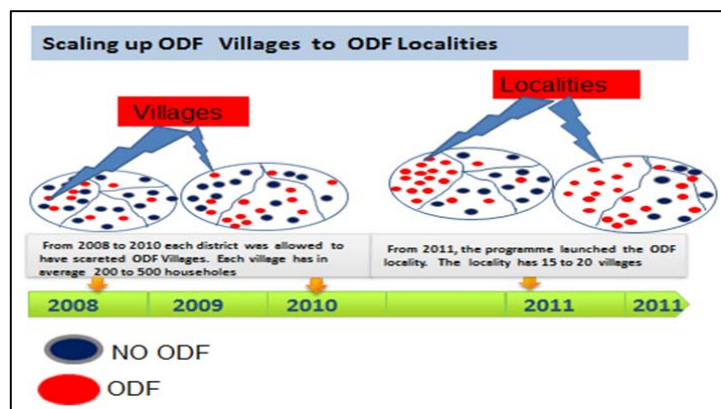
¹⁴ The criteria for safe sanitation include a durable and washable slab (can be made from any local material); a lid that properly covers the hole; a superstructure that provides walls and door for privacy; a roof to prevent rain water from damaging the slab; a safe pit to prevent collapsing due to soft or sandy soils; and the presence of a handwashing facility with soap or ash.

OMI supported this process by selecting 58 communities declared ODF and informed them of the criteria for meeting national standards for safe sanitation. A pilot activity upgraded 77% of traditional latrines in 2010 and 22% in 2011, benefitting 16,197 people.

OMI has successfully scaled up from community to the locality and district levels as a result of the following:

- NGO/ EASs were contracted as implementing agencies of district-wide PEC Zonal and were made responsible for implementation of CLTS interventions.
- Involvement of district and sub-district authorities and leaders already collecting information on water and sanitation for the manual database encouraged public recognition of the contribution of local leaders.

FIGURE 6: SCALING UP ODF COMMUNITY TO ODF LOCALITY



Source: UNICEF, 2012b.

8.1.5 Participatory planning at district level

OMI supported decentralisation by promoting participatory planning at the district level. In keeping with the national policy on demand responsive approach (DRA)¹⁵, PEC Zonal disseminated clear information on the requirements for obtaining a new or rehabilitated water source. Communities submitted an expression of interest and were represented by local leaders in the *Conselhos Consultivos Distritais de Desenvolvimento* (CCDD). Water and sanitation were discussed, and communities were prioritised and included in the *Plano Económico e Social* (PES). While decentralised planning processes have yet to be adequately documented, district governments' involvement in planning and promotion is considered important to support action plans for post-construction sustainability.

Overlooking the prerequisites for community eligibility during the prioritisation process and the implementation phase can affect the functionality of handpumps, e.g., implementing agencies allowing communities to respond differently to the same requirements. For instance, only 15 per cent of communities receiving improved water facilities made an upfront contribution to the capital cost of the infrastructure (IOB and UNICEF, 2010). During field visits, the lack of clear rules and consequences for non-compliance with eligibility requirements were observed in some communities that already had collected their contribution for capital costs.

¹⁵ Upfront contribution to capital costs is a requirement for construction of a new or rehabilitated water sources. It also provides alternatives on how this contribution can be made by communities according to their ability to pay.

8.1.6 Monitoring: district database

OMI's implementation approach included a series of workshops to enable districts to prepare a plan to support WASH activities after construction. A key element of the strategy was monitoring latrine construction, ODF status and breakdowns of handpumps using the manual database. PEC Zonal worked with community activists to train local leaders and community aministrators to collect information "house-to-house" and to keep records in each community with the support of leaders of groups of ten houses to collect information. Activists collected data from communities and compiled information at the locality and administrative post levels. The manual database played a key role in motivating and supporting routine maintenance and helped communities and localities to achieve ODF status.

Data captured were population data, the number of working and broken handpumps, user contributions to O&M costs, and numbers of improved and traditional latrines, bathrooms, drying racks and rubbish pits.

Information was linked to the National Information System for Water and Sanitation (SINAS). After compiling the information at district level, it was sent to DPOPH, which in turn submitted information to SINAS in DNA at the central level. The PRONASAR baseline study made use of manual databases at the district level.

District governments have identified the need to continue with the Manual Database after OMI ends, both as a tool to monitor performance of water and sanitation functionality and to motivate communities to improve their water, hygiene and sanitation practices. Two options have been identified: 1) integrating activists, who are currently PEC Zonal staff, into the government structure at the Administrative Post or Locality level; and 2) contracting a local NGO for continuous post-construction support, monitoring and promoting CLTS.

In meetings held in three OMI provinces last July 2012, the need to define a percentage of the district budget that local governments should allocate for post-construction activities was identified. This indicated ongoing commitment from District Administrators to continue using the Manual Database and provide post-construction support. The turnover of government officials can however hamper the momentum and post-construction monitoring and support.

8.1.7 Community cluster management models

A variety of the community management model has been adopted by some community clusters or *Comité Mãe*. Good practices from these initiatives have been incorporated in OMI's Sustainability Strategy (UNICEF, 2012) Cluster community management committees typically comprise a president, secretary and treasurer (responsible for decision making, managing and accounting for funds for O&M, and overseeing micro-credit schemes); one full-time mechanic (responsible for routine maintenance and major repairs) of handpumps; one caretaker per hand pump (part of a maintenance group); and a community activist responsible for collecting water fees and ensuring the hygienic use of water sources.

Community leaders were considered important for controlling the use of funds, bookkeeping and resolving conflicts. The entrepreneurial vision of some influential local leaders has motivated neighbouring communities to contribute to a common fund. This form of management by community clusters is one of the first steps in institutionalising a community management model, which requires setting up a cohesive arrangement of management, accounting and bookkeeping tasks.

Additional support from PEC Zonal and SDPI is needed to institutionalise community management, ensure the transparent use of water fees, improve timely collection of fees and define sanctions for non-payment of water fees as well as exemptions for poor and vulnerable households.

Effectiveness of the community cluster approach is further enhanced when economies of scale is achieved by aggregating demand and improving timely response to handpump breakdowns, e.g., employing a full-time mechanic and buying spare parts in larger quantities for all communities in the cluster. The cluster model can be further professionalised by continued efforts to improve accounting practices, strengthen linkages with local and district authorities and close monitoring of finances.

According to OMI's sustainability strategy (UNICEF, 2012), this model is suitable for neighbouring communities with three to seven water sources within 400 metres between each other, serving 300 to

3,000 users with water sources that are fully operational. Community clusters can also help find solutions in response to handpumps with major problems, since community members could benefit by sharing the burden of frequent breakdowns (Sutton, 2009).

Community cluster management model and productive use of water fees

A successful example of the community cluster approach is found in communities under the management of a *Comité Mãe* in the Pacassa, Changara district in Tete province. This community cluster was formed in 2007, in collaboration with World Vision, to address the high cost of repairs of four protected water sources in the communities.

The four protected boreholes were equipped with Afridev handpumps installed in 1972, 1974, 1980 and 2004. All but the most recent was installed by *Estaleiro Provincial de Agua Rural* (EPAR) using the supply driven approach, with an average repair response time of three months.

World Vision, contracted by OMI in 2007 to carry out PEC Zonal in Changara District, supported the idea of creating a single water committee for the community cluster. The new committee was composed of 24 people (See Figure 7): 10 women and 14 men, and an MTN 5 (€ 0.13) monthly fee and collection system for each handpump was set up. Handpump caretakers collected monthly fees at the water point and also house-to-house. After one year the committee had MTN 9,305.30 (€ 246.07) after paying for pump repairs. The balance at the end of 2009 was MTN 42,916 (€ 1,134.85). During the visit in July 2012, the committee had a remaining balance of MTN 65,000 (€ 1,718.77), including MTN 49,999 (€ 1,322.09) in cash (Mugabe, 2012).

Strong leadership and short distance to alternative water sources motivated community members to support the community cluster water committee, and to pay for the use and maintenance of their water sources.

Three solutions were implemented to help improve water services: a full-time mechanic was hired; a three-month routine maintenance cycle was institutionalised; and the transparent use of water fees was ensured.

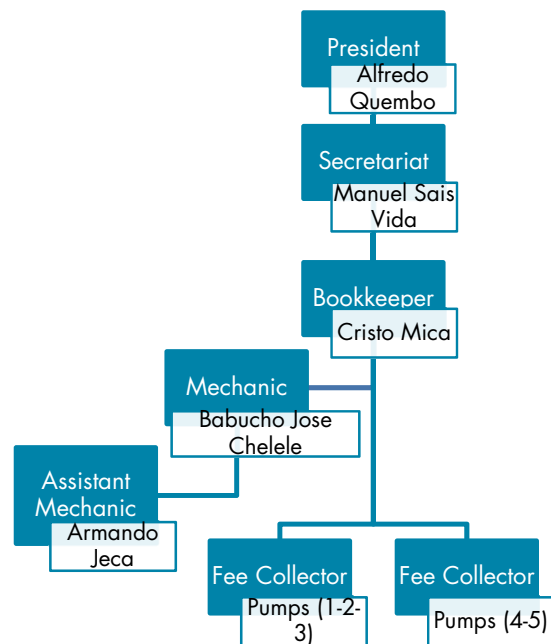
Consistent routine maintenance and the quarterly presentation of accounts at public meetings have helped foster a strong sense of trust among community members.

Based on its experience in implementing micro-credit projects, World Vision proposed the use of O&M funds to provide credit to community members.

Funds were used:

- **As a social fund to provide assistance to needy community members.** Funds were used to support skilled labour and purchase an ambulance bicycle cart or cement for the construction of school rooms.
- **To provide credit to local entrepreneurs.** To receive this credit, proposed projects would undergo a careful screening process for the community leader's approval. Loan was repaid in instalments, subject to an interest rate based on the loan period. In case of non-payment, corrective action was taken. With no plausible justification, the local police was asked to enforce payment.
- **For O&M.** A minimum of MTN 6,100 (€ 160) was recommended to be set aside for O&M.

FIGURE 7: COMPOSITION OF WATER COMMITTEE IN CHANGARA



Source: Field work research

In 2009, MTN 70,906 (€ 1,840) was collected. Expenditure for handpump maintenance and repair was MTN 27,989 (€ 730), and the amount used for loans was MTN 36,835 (€ 960). The balance at the end of the year was MTN 42,916 (€ 1,115). Bookkeeping was introduced to keep track of revenues and expenditure from the O&M fund.

Routine maintenance and prompt response to breakdowns have improved water services. OMI provided the first kit of spare parts to a local shop, which also sold food and other items. The water and sanitation committee supported the shop, which bought spare parts in large quantities from the district or provincial capital or from truck drivers.

Advantages of such an arrangement for vendors include a fast turnover of stock and sufficient cash flow to buy more spare parts. This was possible due to the steady demand created by routine maintenance from a cluster of communities. Neighbouring communities knew about the shop and also bought spare parts there.

Economies of scale reduced O&M costs and supported sustainable water services through:

- Quarterly routine maintenance to reduce breakdowns.
- Continuous flow of spare parts due to the demand for routine maintenance from a larger number of communities.
- Technical assistance for major breakdowns.
- High willingness to pay due to well-functioning services and benefits from the social fund and micro-credit schemes.
- Transparent use of funds and collective decision making by the *Comité Mae*.

8.2 SUMMARY OF LESSONS LEARNT

Important features of PEC Zonal have been identified. These include:

- Economies of scale in a larger geographic area generated additional demand for spare parts and artisans and local mechanics' services. In traditional PEC the possibility of creating economies of scale was limited since activities were scattered and of shorter duration.
- Engagement of local authorities in planning and monitoring at district and sub-district level.
- Harmonised and integrated approach to service provision, i.e., water, sanitation and hygiene improvement across a district.
- Post-construction monitoring helped to plan and organise post-construction support, track routine maintenance and repairs of latrines and ODF status. The manual database encouraged peer-to-peer competition and provided information to the sub-district, district, provincial and national levels. Most importantly, it supported in decision making by identifying areas for corrective measures.

The following issues were found relevant to PEC Zonal's role in increasing the provision of sustainable services:

- Local vendors can sell spare parts as a business if there is a community cluster with financial resources for initial investment, enabling vendors to buy in bulk from manufacturers or wholesalers to serve a growing market with future prospects.
- The RWSS sub-sector and PEC Zonal have focused on the technical skills of local mechanics and artisans. Entrepreneurial skills and approaches are also needed, as well as access to transportation and start-up spare parts stocks.
- Mini piped water systems (e.g., an elevated storage tank with one to three taps) were increasingly requested by large communities as the increased number of taps can provide water simultaneously to several users. Reduction in collection time can increase water consumption and free up time for other activities.
- To create demand, PEC Zonal should focus on benefits such as reducing walking distance and freeing time for improving livelihoods. This can be achieved through alliances with local leaders, by understanding the dynamics of social cohesion and using peer-to-peer pressure at household and community level to stimulate behaviour change.
- Up to one-third of handpumps were operating under stress with frequent breakdowns and higher operation costs, because they were used either by too many users and/ or had water tables that were deeper than the capacity of the pump allows.
- The productive use of water fees helped communities cope with insecure safekeeping and depreciation, helped accumulate resources for O&M, and contributed to the renewal, rehabilitation, replacement and upgrade of infrastructure, as well as in improvements to levels of service.
- Implementing CLTS as part of PEC Zonal has facilitated WASH-related hygiene behaviour change. When combined with clear information and support to household decision making on sanitation, improved latrines have been constructed by households. By scaling up the focus of activities from the community to locality and district levels, economies of scale have become possible. Local leaders gained experience and were able to contribute ideas on how to adapt latrine designs and construction techniques to local conditions, materials and cultural norms.
- Participatory planning at district level based on clear criteria will enhance commitment if accountability is enforced and sanctions are fairly applied. This includes clear information about eligibility criteria; a level of commitment from prioritised communities that is sufficient to ensure their engagement during implementation; including project activities in local government plans; and facilitating district government involvement during the post-construction phase.
- Water and sanitation activities can benefit from collaboration with other sectors such as health, education, rural development and micro-credit and programmes that provide technical assistance and resources to communities. The most appropriate level for this collaboration is the district

administration, which should coordinate relevant sector plans during the preparation of the annual PES and budget.

Annex 1 presents an analysis of gaps in sustainability from international experience, government policies and strategies, PEC Zonal and related studies in Mozambique.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 QUALITATIVE ASSESSMENT

PEC Zonal as an approach was assessed against the building blocks of a service delivery approach using a five-point scale (Lockwood and Smits, 2011).

TABLE 5: ASSESSMENT OF RELATIONSHIP BETWEEN PEC ZONAL AND BUILDING BLOCKS FOR SUSTAINABLE SERVICE DELIVERY

PARAMETER	SCORE*
<p>Professionalisation of community management</p> <p>Community management must be properly embedded in, and supported by policy, legal and regulatory frameworks and support services, both at national and local levels. In order to become more effective community-based management entities must be legally recognised.</p>	3
<p>Increased recognition and promotion of alternative service provider options</p> <p>A range of different management options beyond community-based management; including local private operators that can better support different service levels, technology and types of settlements. These should be described and set out in clear service delivery models, which are well disseminated.</p>	3
<p>Sustainability indicators and targets</p> <p>Monitoring and target indicators should move beyond systems built and beneficiaries served and include benchmarking against the services delivered and performance of service providers.</p>	2
<p>Post-construction support to service providers</p> <p>Most community-based management and local private operators cannot manage on their own. There is a need for structured systems of support that are properly funded to back up and monitor service providers. In many cases it is local government that will take on this responsibility.</p>	4
<p>Capacity support to decentralised government (service authorities)</p> <p>Many local governments will require help and support if they are going to fulfil their role in guaranteeing services. Ongoing capacity support programmes covering key functions in the life cycle of rural water supply services, including management, procurement and contracting, are needed and must be paid for.</p>	4
<p>Learning and sharing experience</p> <p>Learning and knowledge management is an important element of any mature sector. This should not rely on ad hoc support, but become an integral part of sector capacity and be properly funded both at the national and decentralised levels.</p>	4
<p>Planning for asset management</p> <p>One of the main weaknesses of rural water provision has been the lack of proper asset</p>	0

TABLE 5: ASSESSMENT OF RELATIONSHIP BETWEEN PEC ZONAL AND BUILDING BLOCKS FOR SUSTAINABLE SERVICE DELIVERY

PARAMETER	SCORE*
management. Systematic planning, inventory updates and financial forecasting should be introduced. Ownership of assets must be better defined so as to allow for delegated contracting where appropriate.	
Financial planning covers all life-cycle costs Sector financial frameworks must be expanded beyond the basics of capital investments and minor operation and maintenance costs. All life-cycle costs must be accounted for, especially major capital maintenance expenditure and direct and indirect support costs.	0
Regulation of rural services and service providers Service provision—and the performance of service providers of all types—should eventually be regulated, even where this is done with a light touch system. Any attempts to establish regulation should apply appropriate performance criteria and not be overly punitive for fledgling rural operators.	0
Benchmarking Performance and financial benchmarks can be used to establish targets for resource allocation, assess the quality of services and provide service authorities with information for planning, monitoring, contract management and evaluation.	0
TOTAL (maximum score = 50)	20

* 0-Absent, 1-Poor, 2-Fair, 3-Good, 4-Very Good, 5-Excellent

Source: Own elaboration (2013), table parameter derived from Lockwood and Smits, 2011.

Based on the above assessment, PEC Zonal contributes to sustainable service delivery in the following areas:

- Professionalisation of community management.
- Increased recognition and promotion of alternative service provider options.
- Post-construction support to service providers.
- Capacity support to decentralised government (service authorities).
- Learning and sharing of experience.

The following elements of PEC Zonal support the functionality and sustainability of water facilities and can be considered for replication beyond OMI and inclusion in MIPAR¹⁶:

¹⁶ Detailed recommendations about CLTS can be found here: Pendly, C. and Obiols, A.L., 2013. Learning from Innovation: One Million Initiative in Mozambique, Community-Led Total Sanitation Case Study. The Hague: IRC International Water and Sanitation Centre.

TABLE 6: ELEMENTS OF PEC ZONAL	
DOMAIN	PROGRAMME ELEMENTS
Finance	Productive use of water fees.
	Professionalisation of financial management, accountability and legal recognition of community organisations to promote transparent and efficient management of funds.
Social	Alternative triggers for demand creation focused on delivery of benefits to users.
Governance	OMI's management model can be applied to other rural communities with water sources with technical problems, or larger, more densely populated settlements. <i>Comité Mãe</i> helps overcome imbalances between communities by realising economies of scale, improving access to spare parts and technical assistance and facilitating access to capital for higher service levels where boreholes have sufficient yields.
	Integration with participatory planning at district level.
Sustainability indicators and targets	Post-construction monitoring.

9.2 GAP ANALYSIS

A gap analysis was used to identify additional recommendations (See Annex 1). These recommendations are presented in two groups: 1) for improved WASH programme implementation, and 2) for helping to bridge the gap between programme implementation and a sector-wide service delivery approach.

9.2.1 Recommendations for improved programme implementation

TABLE 7: RECOMMENDATIONS FOR IMPROVED PROGRAMME IMPLEMENTATION		
DOMAIN	STATUS	RECOMMENDATIONS
Technical	Need for alternative technological options for deeper water tables and larger communities to promote routine maintenance by reducing the burden on overstressed handpumps and O&M costs.	Document experience from Mozambique and neighbouring countries (e.g., Swaziland) with Afrideep and other deep well pumps. Use drilling logs and information from PRONASAR baseline study to prepare updated hydrogeological maps showing areas with deep water tables (>45 m). Document O&M costs over time and use information to determine life-cycle costs of water facilities.
	Need for improved sanitation designs and construction methods using local materials.	Disseminate information on appropriate sanitation designs, construction methods and materials to community members through committees, to district and sub-district staff and NGOs / social enterprises implementing PEC Zonal.
Governance	Need to identify optimal size of cluster areas.	Include in ToR of team that will conduct next sustainability check.
	Need to understand and exploit potential of community	Include in ToR of team that will conduct next sustainability check.

TABLE 7: RECOMMENDATIONS FOR IMPROVED PROGRAMME IMPLEMENTATION		
DOMAIN	STATUS	RECOMMENDATIONS
	cluster management model.	Document and disseminate experience with PEC Zonal through case studies such as this one.
	Need to recognise differences between community and service provider (water and sanitation committees).	Implement guidelines for selection of water and sanitation committee members across RWSS programmes and projects, including procedures for reporting and accountability.
	Need for additional capacity building of water authorities—skills development and support to district and sub-district governments—to effect better understanding and fulfilment of their role in budgeting, planning, monitoring and auditing service provision, and regulating, managing and supporting service providers.	Place increased emphasis on capacity building of relevant district and PA staff using results of the institutional assessment of the PRONASAR baseline study, in particular the relevant district reports. The self-assessment of needs by district and PA staff in the baseline study will be particularly useful.

9.2.2 Recommendations for DNA to bridge gap between project/ programme implementation and a sector-wide service delivery approach

The table below presents recommendations for DNA to bridging the gap between project/ programme implementation and moving towards a sector-wide service delivery approach

TABLE 8: RECOMMENDATIONS FOR DNA TO BRIDGE THE GAP BETWEEN PROJECT/ PROGRAMME IMPLEMENTATION AND SERVICE DELIVERY APPROACH		
DOMAIN	STATUS	RECOMMENDATIONS
Financial	Cost-effectiveness of the PEC Zonal approach needs further analysis, as does technical assistance to facilitate achievement of safe sanitation in triggered communities.	Cost effectiveness of PEC Zonal should consider activities that help strengthen management capacity at district level, the capacity of the private sector to provide post-construction services, as well as the costs of capacity building for monitoring performance of service provision across districts.
	Strengthen professional approach to addressing the supply chain by working with local entrepreneurs.	Prepare inventory of entrepreneurs at district level in collaboration with district government and SDPI.
	Lack of current and valid information about demand for spare parts and sanitation products.	Undertake study of spare parts and sanitation market. Identify and network with business partners at national and provincial levels.
	Lack of knowledge about and contact with potential business partners.	Prepare inventory of potential business partners at national, provincial level and convene a seminar on business opportunities in the RWSS sub-sector.
	Need to identify post-project	Identify post-project monitoring and support costs for

TABLE 8: RECOMMENDATIONS FOR DNA TO BRIDGE THE GAP BETWEEN PROJECT/ PROGRAMME IMPLEMENTATION AND SERVICE DELIVERY APPROACH

DOMAIN	STATUS	RECOMMENDATIONS
	monitoring and support costs for inclusion in annual district budgets.	inclusion in annual district budgets. Include in DNA's PIA and revised MIPAR.
	Need for minimum requirements for post-construction follow-up activities to be included in annual plans and budget of SDPI.	Prepare guidelines for planning and budgeting for follow-up activities at district level. Include in revised MIPAR.
	Periodic audit of O&M funds by local government.	Prepare guidelines for audits of O&M funds by district government. Include in revised MIPAR.
	All life-cycle costs need to be planned for and adequately funded. If funding is not sustainable, or if responsibilities for financing are not clearly defined, it is unlikely that all costs will be covered.	Special attention should be given to support costs and the need for clear guidelines for planning and budgeting for post-construction support.
Governance	Heighten professionalisation of community management model (legalisation, financial and management systems, accountability and audits, payment for water committee members).	Prepare guidelines for legalising community water and sanitation committees. Include in DNA PIA and MIPAR.
	Better assessment of needs and capacity of water authorities at district and sub-district levels are needed.	Prepare a nationwide capacity building plan for water authorities using PRONASAR training manual.
	Better regulation of services and performance of service providers, including roles and responsibilities, capacity building, auditing and accountability of cluster management model are needed.	Draft and disseminate regulations for water and sanitation service standards, performance of service providers, roles and responsibilities, auditing and accountability of cluster and community committees. Include in revised MIPAR.
	Water and sanitation committees lack recognition by local government.	Prepare and disseminate guidelines for legal status of water and sanitation committees. Include in revised MIPAR.
Promotion of alternative service provider options	The cluster approach to community management has shown promising potential to achieve economies of scale to counteract poor access to markets, improve post-	Include cluster approach to community management in revised MIPAR.

TABLE 8: RECOMMENDATIONS FOR DNA TO BRIDGE THE GAP BETWEEN PROJECT/ PROGRAMME IMPLEMENTATION AND SERVICE DELIVERY APPROACH

DOMAIN	STATUS	RECOMMENDATIONS
	construction support and support the eventual upgrade of levels of service where technically feasible.	
Sustainability indicators and targets	Need for post-construction monitoring to track preventive and routine maintenance and ODF status; support in decision making; and set in place corrective measures to improve sustainability of WASH services	Use results of sustainability checks and routine monitoring from OMI to assess the effectiveness of post-construction support and identify appropriate corrective measures. Use information to formulate guidelines for post-construction support. Include in MIPAR and PRONASAR.
Enabling environment	Decentralised forums and thematic groups can support harmonisation and coordination among stakeholders and resources, and support stakeholders and district government in the annual planning process and monitoring sub-sector activities.	Encourage and support formation of GTASs in additional provinces and annual district planning and effect intersectoral collaboration with health and education services, using results of PRONASAR baseline study. Include in next PIA.
	Need to include WASH planning and community selection within local government planning processes and annual Economic and Social Plan (PESOD) at district level.	Prepare and disseminate guidelines for integrating WASH planning into the annual district planning process. Monitor implementation of guidelines and include in quarterly PES reporting. Include in DNA PIA and MIPAR
Asset management	Asset management inventory updates and financial forecasting insufficient; ownership of assets should be better defined.	Systematic planning, inventory updates, and financial forecasting for assets and asset ownership should be introduced, clearly defined and included in annual district planning and budgeting.

9.3 CONCLUDING REMARKS

Innovations such as PEC Zonal introduced by OMI can help DNA, provincial and district governments and participating NGOs and social enterprises to plan, implement and monitor the provision of more sustainable water and sanitation services, institutionalise post-construction support and delineate roles and responsibilities to enhance sustainability. PEC Zonal has been scaled up to a national level—having been adopted by PRONASAR and other programmes and projects as the framework within which RWSS activities will be implemented in Mozambique. The gaps identified in this case study represent opportunities to move from standalone water and sanitation projects and facilities to a more cohesive sector-wide approach for the delivery of sustainable water and sanitation services.

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ANNEX 1: GAP ANALYSIS

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
Technical	<p>Appropriate infrastructure choice and affordable technology options and quality</p> <p>Ensure environmental sustainability</p> <p>Integration with institutional and social development issues</p>	<p>Boreholes sited to minimise possible contamination.</p> <p>Latrines and laundry facilities 50 m from borehole, water quality standards approved, drilling quality standards defined</p> <p>Minimum yield of hand pumps (>1m³/h)</p> <p>A concrete collar and sanitary plug for borehole</p> <p>Latrine options and acceptance of improved traditional latrines</p> <p>Improved latrine slab can also be made of local material and not only concrete</p>			<p>The need for alternative technological options for deeper water tables and large communities above 500 people per community</p> <p>Need for more professional approach to supply chain by working with entrepreneurs; identify optimal size of cluster areas; market study and sanitation marketing; and identify additional business partners at national level</p>
		<p>Community Management Model with VLOM handpumps and private operators for mini-piped systems</p> <p>Integrated water, hygiene and sanitation promotion</p>	<p>Water committee and private operator in place</p> <p>No routine maintenance – done only upon breakdown</p> <p>Most repairs done internally with support from external mechanics</p>	<p>Promotes three-month routine maintenance and trains committee on minor repairs and O&M</p> <p>Monitor water and sanitation performance, involves sub-district authorities</p> <p>Promotes community-local mechanic contracts</p>	

¹⁷ From “Building blocks for sustainable service delivery” from a Service Delivery Approach to Water Supply” <http://www.waterservicesthatlast.org/content/download/1217/7>, the “Triple-S principles framework” (<http://www.waterservicesthatlast.org/Resources/Concepts-tools/Service-delivery-approach>) and “Most Commonly Cited Factors For Post-Construction Sustainability” (review by Aquaconsult for the WB), interim product, assessing sustainability in rural water supply: the role of follow-up support to communities, literature review and desk review of rural water supply and sanitation project documents, Harold Lockwood, Alex Bakalian, Wendy Wakeman, <http://www.aguaconsult.co.uk/uploads/pdfs/WBAAssessingSustainability.pdf>. More on the project: <http://www.worldbank.org/watsan/bnwp>

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
		Alternative choices: rainwater catchment systems, spring catchment areas, hand dug wells. Mini-piped systems	PEC supports private sector for post-construction support and spare parts supply, O&M and for promotion of water, hygiene and sanitation	<p>Promotes initial contracts between districts and artisan's associations for rehabilitations</p> <p>Training local artisans to rehabilitate protected water sources</p> <p>Promotes commercial link between district and provincial vendors of spare parts</p> <p>Promotes spare parts vendors at district and sub-district level through local mechanics to reduce cost of transportation for spare parts, provide subsidised first kit of spare parts to local vendors</p>	<p>Professionalisation of Community Management Model (legalisation, financial and management systems, accountability and audits, payment of water committee members.</p> <p>Recognise the potential of Community Cluster Management Model</p>
		N/A	Only one choice for water points (including >500 people and + 45 m)		
			N/A	Social, technical, financing and institutional factors monitored throughout project life cycle of wash services	

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
Financial	<p>Appropriate billing and tariff collection system in place</p> <p>Accountability and transparency to customers</p> <p>Clear, enforced sanctions for non-payment</p> <p>Financial bylaws and provisions in place</p> <p>Awareness of all costs in providing services (life-cycle costs)</p>	<p>Users know, nominate and trust the institution / person collecting the funds. Clear and widely-disseminated rules and regulations will also benefit community management and tariff collection efforts</p> <p>Communities are responsible for defining amount and type of payments, exemptions and sanctions for non-payment</p> <p>Capital cost, operation, maintenance, repairs and replacement are considered for handpumps and small piped systems, however no post-construction monitoring and capacity building and wash promotion is recognised by sub-sector policy</p> <p>Community contribution used to partially paid drilling companies which raised sense of ownership of the handpump</p> <p>Recently introduced a maintenance book, a tool for all records related to customers, payments and expenditures related to water service provision</p>			<p>Identification of post-project monitoring and support cost for inclusion in annual district budgets</p> <p>Subsector should have a minimum requirement for follow up activities to be included in annual budget of SDPI</p>
Social	<p>Effective advocacy and communication</p> <p>Community awareness, responsibility and willingness to pay</p> <p>People-centred development approach</p> <p>Training and capacity building</p> <p>Integrated water,</p>	<p>Communities should express interest by</p> <ul style="list-style-type: none"> - Selecting a water and sanitation committee and a maintenance group - Contributing to capital costs according to level of service to be paid to drilling contractor - Households responsible for capital cost of sanitation - 100% payment of operation, maintenance, repair and replacement costs <p>Emphasise community participation in decision-making with special attention to women, throughout the project cycle</p> <p>An effectively functioning water and sanitation committee</p> <p>Introduced bookkeeping for transparent and accountable use of funds</p> <p>Training in problem analysis, informed decision-making and planning and implementation of WASH-related activities and O&M of water sources</p>			<p>Harmonised with national guidelines for community expression of demand</p>

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
	sanitation and hygiene services	<p>Integrated water, hygiene and sanitation activities to generate demand and to ensure sustainable O&M of the systems (water sources and latrines)</p> <p>Schools are focus for hygiene promotion activities</p> <p>Use of participatory methods such as SLTS or PHAST</p> <p>Water and sanitation committees undertake / oversee O&M of water point</p> <p>Water and sanitation committees collect and use revenues for capital and recurrent costs of the water point</p>			
		<p>Committees must consider operation and maintenance costs of technical options.</p> <p>District government responsible for bi-annual monitoring based on standard forms and training provided by SINAS</p> <p>Inform communities about criteria, methods of financing, being responsible contributing from two to ten % of capital cost and 100% for O&M, R&R</p> <p>For small piped systems communities pay water fees, and district government is responsible for capital costs and selecting management model</p>	<p>No post-construction monitoring</p> <p>Demand Responsive Approach used in one district</p> <p>Another district used supply driven approach with private operator responsible for O&M</p> <p>Gender balanced committees with clear roles and responsibilities</p>	<p>Manual database at sub-district level established and updated quarterly</p> <p>Information is compiled at district level and integrated to SINAS through bi-annual report from DPOPH</p> <p>Reinforcing messages are delivered by district and sub-district authorities</p>	None
Governance	Good policy in place	Good policy in place			Better define and build

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
	<p>Participatory WASH development planning</p> <p>Appropriate water service provider selected</p> <p>Clear roles and responsibilities</p> <p>Water service provider fulfils its roles and functions</p> <p>Bylaws and contracts to regulate provision of services</p> <p>Monitoring and evaluation for sustainability</p>	<p>Participatory WASH development planning</p> <p>Clear roles and responsibilities though very little application of it</p> <p>Community selects water and sanitation committees and or private operators</p> <p>Facilitate election of committee members with clear roles and responsibilities followed by training on management, decision making, O&M</p>	<p>Regional water committee recognised by local government</p> <p>In Inharrime, local government provides post-construction support and assistance to communities</p> <p>In Muchungue, there are contracts between regional committee and local mechanics with performance monitoring by local government</p> <p>There are short breakdown periods of handpumps reflecting very good performance</p> <p>Performance of private operator monitored by district government</p>	<p>District government as service authorities is recognising importance of monitoring and capacity building role after project withdraws</p> <p>The sustainability strategy has been a government agenda in some of the target districts</p> <p>From community leaders to district authorities, programme priorities in district development councils in some of target districts</p> <p>Each district elaborates an action plan for sustainability</p> <p>Constant performance monitoring is part of the sustainability monitoring</p> <p>Promotes contracts between district government and different service providers e.g., PEC-Zonal, artisan associations</p> <p>Spare part vendors at district and sub district levels; artisan association for major repairs and / or rehabilitations</p>	<p>capacity of water authorities</p> <p>To recognise differences between community and service provider (Water and Sanitation Committee)</p> <p>Water committees to be recognized by local government</p> <p>Periodic audit of O&M funds by local government</p> <p>Professionalisation of water committees with more accountability</p> <p>Need to move away from volunteerism</p>

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
				<p>Promotes contracts between communities and local mechanics for major repairs</p> <p>Series of institutional and technical sustainability promotion workshops involving all stakeholders</p> <p>Manual database from sub district level to district. Monitoring data used to feed SINAS through bi-annual report system</p>	
Service provision	<p>Appropriate WASH service provider in place</p> <p>Clear roles and responsibilities</p> <p>Wash service provider has capacity to fulfil all its functions</p> <p>Efficient service provision systems in place (management, operations, maintenance, customer care, financial etc.)</p> <p>Wash service provider has access to skills training and capacity building</p>	<p>A community management model for protected water sources at policy level to be elected in a participatory way</p> <p>Private operators for small piped systems are selected through a participatory process</p> <p>Water committees should be able to:</p> <p>Undertake or oversee technical operations and maintenance of water points</p> <p>Identify demand and offer a service to meet this demand in a manner that promotes willingness and ability to pay</p> <p>Responsible, transparent, equitable and timely collection and use of revenues for capital and recurrent costs of the water point</p> <p>Training to enhance community problem analysis, informed decision making process and planning and implementation of WASHrelated activities and O&M of water source</p> <p>Involvement of private sector: local mechanics, artisans and demonstrations centres</p> <p>Three models of spare parts commercialisation:</p> <p>District private vendors and sub district level public offices</p> <p>Community-local artisans / mechanics-district / provincial vendors</p> <p>Business packages. Involve public sector when the market is not attractive to private sector</p>			<p>Professionalisation of water and sanitation committees by introducing frequent audits and legalising CAS of and from local government and moving away from volunteerism</p>

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
	<p>Supply chain management</p> <p>Access to post-construction support for major maintenance or rehabilitation</p> <p>Preventative maintenance of water supply infrastructure and latrines</p> <p>Access to supply chain of WASH-related goods and services</p> <p>Asset management</p> <p>Sufficient finance to cover ongoing operation and maintenance</p>	<p>Technical assistance from local private mechanics paid by communities</p> <p>Community-local artisans / mechanics-district/provincial vendors model</p> <p>Contact district administration for major problems</p> <p>Communities are responsible for setting the water fee to cover O&M, repairs, replacement and substitution, defining type of payments, exceptions and sanctions for non-payment</p> <p>Support sanitation demonstration centres</p>	<p>Local government provides post-construction support and assistance to communities</p> <p>Contracts between cluster committee and local mechanics with performance monitoring by local government.</p>	<p>Committees perform well with knowledge of supply chain management, water fee collecting system, etc</p> <p>In 2009, OMI provided routine maintenance kit for handpumps to local vendors at sub district level</p> <p>Most communities have more revenue than expenses</p>	None
Enabling Environment at national level	<p>Policy, legislation and institutional roles are clear</p> <p>Integrated development planning</p> <p>Professionalisation of community management</p>	<p>Community should elect water and sanitation committees with a maintenance group for each handpump</p> <p>O&M community authorities elected by communities are recognised and regulated by decree 15/2</p> <p>District government (SDPI) responsible for sustainable water and sanitation coverage. However, no formal system is in place</p>		<p>Community Cluster Water Committee elected between several communities to manage several handpumps</p>	<p>Support to GTAS and district level harmonisation and coordination forums</p> <p>Inclusion of WASH planning and community selection process within local government development council</p>

DOMAIN	KEY SUSTAINABILITY FACTORS (INTERNATIONAL EXPERIENCE) ¹⁷	GOVERNMENT POLICY, GUIDELINES AND STRATEGY PAPERS	WSP STUDIES - OVER 5 YEARS OPERATIONAL SYSTEMS AND PEC ZONAL	PEC ZONAL (OMI)	GAPS
	<p>Recognition and promotion of alternative service provider options</p> <p>Monitoring service delivery and sustainability</p> <p>Harmonisation and coordination</p> <p>Capacity support to service authorities</p>			<p>Manual database from sub district level to districts. Link to SINAS through bi-annual reports from DPOPHs</p> <p>Sustainability check-external annual monitoring system for sustainability</p> <p>Ongoing capacity building for monitoring sustainability through parallel structure to district, sub district and locality levels in situation; Supervision by DPOHs, SDPI and UIPs</p> <p>Personnel, equipment and training provided to local government</p>	<p>planning process and Economic and Social Annual Plan (PESOD) at district level</p>