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Rural and Town Water Supply

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Pedro Simone, Luis Macário and Peter Michael Hawkins

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Authors: Pedro Simone, Luis Macário and Peter Michael Hawkins (World Bank Water and Sanitation Program).

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Acronyms and Abbreviations

AIAS	Water and Sanitation Infrastructure Board
CPAS	Provincial Water and Sanitation Council
CRA	Water Supply and Sanitation Regulator
DAS/DNA	Water Supply and Sanitation Department/National Directorate of Water
DPOPHRH	Provincial Directorate of Public Works, Housing and Water Resources
DPSP	Domestic Private Sector Participation
FIPAG	Water Supply Investment and Assets Fund
INE	National Statistics Institute
MDGs	Millennium Development Goals
MEF	Ministry of Economy and Finance
MOPHRH	Ministry of Public Works, Housing and Water Resources
NGO	Non-governmental organization
NWDP	National Water Sector Development Program
ONGAWA	Spanish NGO: <i>Ingeniería para El Desarrollo Humano</i>
PPP	Public-private partnership
TA	Technical assistance
WSP	Water and Sanitation Program (World Bank Global Water Practice)

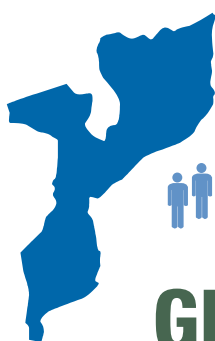
Executive Summary

Given the Government of Mozambique's continuing emphasis on decentralization and the development of rural growth poles, small towns and rural growth centers have a vital role to play both in promoting economic development and bringing public services to the population. Functioning water supply services are essential for the development of any settlement, especially those which are to support businesses and public services. As of 2015, small towns represent 15 percent of the total Mozambican population, about 3.8 million people, and this share is projected to increase to 18 percent (about 6.6 million people) by 2030. However, current water supply coverage rates in small towns, estimated at 25 percent, are still far from desirable levels, and well behind those in both rural areas (50 percent) and large urban centers (79 percent).

To address this service deficit, the government has recently extended to small towns the delegated management framework previously in place only for the largest water supply systems. In the context of new and unconsolidated institutions, lack of clear procedures for delegated management, and a weak incipient private sector, the Water and Sanitation Program has been providing support through the Rural and Towns Water Supply technical assistance project (P132005), in coordination with inputs from other development partners, in addressing the institutional challenges to the development of sustainable water supply services and implementation of the delegated management framework in small towns.

The project supported a review of the contracting documents used previously in a pilot of delegated management, to simplify the procurement process and also to provide incentives for investment in infrastructure by the operators. Institutional development and strengthening was provided through technical assistance to the national institutions responsible for delegated management implementation in small towns (the Water and Sanitation Infrastructure Board – AIAS, the Water Supply and Sanitation Department, under the National Directorate of Water – DAS/DNA), and to their related decentralized institutions, in line with national policies and regulations.

The review of contracting documents and drafting of the implementation framework were finalized in September 2012. Since then, the delegated management framework is being gradually rolled out in both the 130 small towns for which AIAS is responsible as well as the over 400 smaller rural growth centers for which the DAS/DNA is responsible. The government is responsible for capital investment, and once a system has been put into a viable operational state, a professional operator is contracted to run and maintain it under a lease agreement. To date, 39 systems are managed by private operators (20 under AIAS and 19 under DNA/DAS).



POPULATION

27.22 MILLION



*(2014 Projections by the National
Institute for Statistics)*

GDP \$15.94 BILLION

(<http://data.worldbank.org/country/mozambique>)

Clearly, a much longer monitoring period would be needed to evaluate fully the impact of the new, wider delegated management regime, especially as the operational reporting system is only now becoming established. However, some tentative conclusions can be drawn from the results achieved by the seven operators which started to report regularly to AIAS in the first quarter of 2015. They are supplying water to consumers consistently seven days a week and on average 12 hours a day, with a per capita consumption above 50 liters a day, and the number of individual connections in each scheme is increasing, although quite slowly. The operators are close to covering operational costs (96 percent), but could quite easily improve this, given that physical losses are still high at 40 percent, revenue collection efficiency is still low at 67 percent, and overstaffing apparent.

Principal learnings from this work include the following:

- ***The domestic private sector is emerging*** and engaging in the water supply business. Flexibility in terms of allowing bidders to tender without bank guarantees or a track record, backed by systematic local publicity via the local radio stations, public meetings and notices, in addition to the standard publication of calls for tender in the national press, were important factors in attracting them into the business.
- ***The active involvement of local government*** and their understanding of the delegated management framework is critical. Fifteen years of experience with delegated management of the larger systems and a pilot with smaller systems allowed many basic issues to be resolved, facilitating the introduction of delegated management for smaller systems.
- Although it was always understood that clustering of several small systems under one operator would be desirable in order to generate economies of scale, by adopting a ***piecemeal process, starting small and gradually growing in volume***, a much more robust and stable framework for operator management has been developed. This would have been difficult if large clusters had been put out to tender initially.
- ***Decentralization is fundamental*** for the management of hundreds of small systems. In particular, operator accountability is much improved by the active involvement of local authorities.

Important next steps include:

- ***Establishing a permanent system for providing technical assistance, training, and refresher courses to operators***, bearing in mind that some form of subsidy will almost certainly be required.
- ***Review of the standard five-year term for lease contracts*** with a view both to attracting good operators and to mobilizing operator funds for expansion.
- ***Pilot one or two substantial private sector investments*** for suitable larger systems under AIAS.
- ***Pilot the delegated management of one or two clusters of systems***, taking into account the distance between towns, their sizes, access roads, and the availability of commercial centers where support services can be accessed.
- ***Strengthen service monitoring arrangements.***
- ***Generate a critical mass of delegated systems in one or two selected provinces*** to enable the full development of the new subsector institutional architecture.

I. Introduction

The expansion and improvement of water supply services in small towns and rural growth centers is a major challenge for the Government of Mozambique, and is especially important in the context of its policy of decentralization and the development of rural growth poles and development corridors. At present, the 130 designated small towns, with populations typically in the range of 10,000 to 50,000, house 3.8 million people, about 15 percent of Mozambique's total population. This figure is projected to increase to 18 percent (6.6 million people) by 2030.

However, many of their water supply systems have seen little maintenance or expansion since Mozambique attained independence in 1975. The mean coverage for piped water in these 130 secondary towns was less than 10 percent in 2010, and a significant proportion of them had no functional piped water supply at all. Not only did this mean poor service for users, it weakened the role of these small towns as rural growth centers, where basic services should be available, making a negative impact on the economy. This situation, coupled with rapid population growth, poses a serious challenge to the government's strategic objective of achieving universal water supply and sanitation coverage by 2025.

A similar situation prevailed in 1998 with respect to the larger urban systems, when the government introduced delegated management based on lease and management contracts, under an asset-holder (FIPAG), a private operator (*Águas de Moçambique*) and a regulator (CRA). Since then, these systems have been successfully turned around and now provide over 70 percent coverage as well as recovering costs, including loan repayments. Building on this success, a few of the smaller systems were rehabilitated and leased to private operators about 10 years ago. Despite a lack of institutional support, this pilot demonstrated that autonomous private management can cover operational costs, ensure sustainability, and lead to the expansion of coverage (WSP 2010). It also provided valuable lessons on how to approach the delegated management of smaller systems.

Given these successes and the urgent need to intervene in most of the smaller urban systems, in 2009 the government established a new institutional framework for their delegated management. This framework includes a national asset management agency, the Water and Sanitation Infrastructure Board (or AIAS, which is separate from the Water Supply Investment and Assets Fund, or FIPAG, because the smaller systems are unlikely to be able to repay their capital costs), Provincial Water and Sanitation Councils (CPAS) where local authorities advise the provincial governor on investment and delegated management decisions, autonomous private or public sector operators, and an expanded mandate for the Water Supply and Sanitation Regulator (CRA). After a difficult start-up phase, these new agencies are beginning to function and more (though still insufficient) funding is becoming available to bring the small water supply systems up to basic viability.

In addition, several hundred larger rural settlements (typically the subdistrict capitals or *Postos Administrativos*, with populations from 2,000 to 10,000) are increasingly beginning to justify the installation of piped water supply systems (instead of handpump supplies), and the Water Supply and Sanitation Department/National Directorate of Water (DAS/DNA), as the responsible agency, has adopted delegated management as a means of promoting their sustainability.

This project has been providing support to development and consolidation of this new framework since 2013 by providing technical assistance to the various stakeholders (for example, AIAS, CPAS, operators, DAS/DNA, local government), and through support to the World Bank-funded Water Services and Institutional Support (WASIS) project, which invested in two systems in Nampula and Cabo Delgado provinces.



3.8
MILLION

People presently housed by the 130 designated small towns, with populations typically in the range of 10,000 to 50,000.

Objectives and outcomes

The Development Objective of the project was to improve the sustainability of small piped water supplies in small towns, through improved institutional arrangements and procedures involving both the private and public sectors. This was to be achieved through:

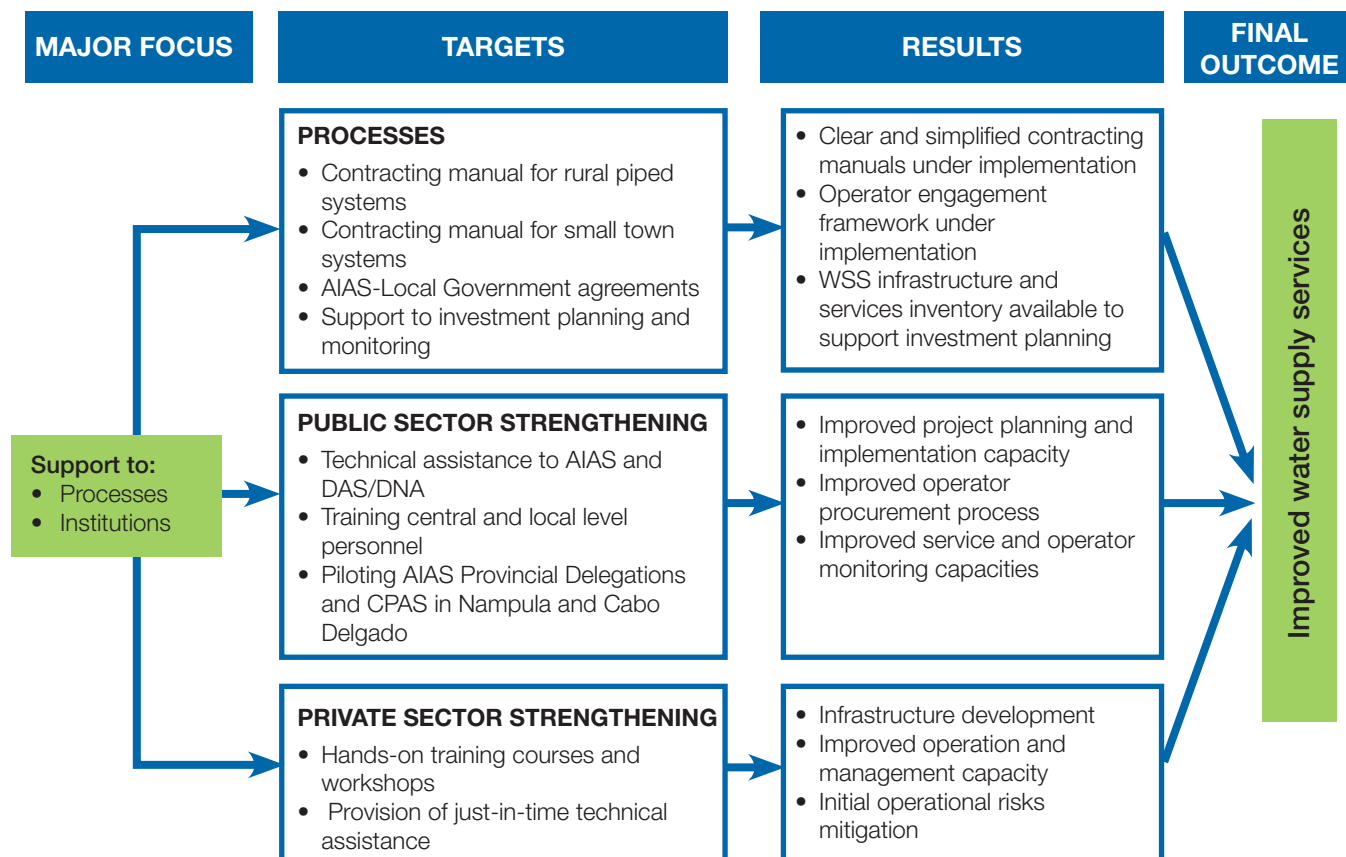
- Investigation and analysis of experience to date.
- Dissemination of the resulting lessons learned.
- Provision of technical assistance to AIAS, CPAS and local authorities in Nampula and Cabo Delgado provinces.
- Promotion of the emergence of small town water system operators.
- National and international peer-to-peer exchanges.

The intended outcome was to produce results which could ultimately contribute to the improvement of service delivery to the poor in the 130 small towns, through better infrastructure development planning, improved implementation capacity, an improved procurement process for private operators, sustainable operation of water supply services by private and autonomous public operators, and improved monitoring and consolidation of the delegated management framework (Figure 1).

Institutional arrangements

In Mozambique, three central government agencies share responsibility for small piped systems, namely FIPAG, AIAS, and DAS/DNA, as shown in Figure 2. All of them report to the Ministry of Public Works, Housing and Water Resources (MOPHRH). Table 1 shows the distribution of responsibility for water supply systems between these institutions.

FIGURE 1: FOCUS AND EXPECTED OUTCOMES WITH DELEGATED MANAGEMENT OF SMALL PIPED SYSTEMS



The three small towns under FIPAG's mandate are served by the systems supplying large urban centers nearby. Since they are fully integrated into the FIPAG framework, they were not the subject of this technical assistance, which was focused on the two groups under AIAS and DAS/DNA responsibility. These two agencies and their related decentralized institutions and stakeholders are outlined in Figure 2.

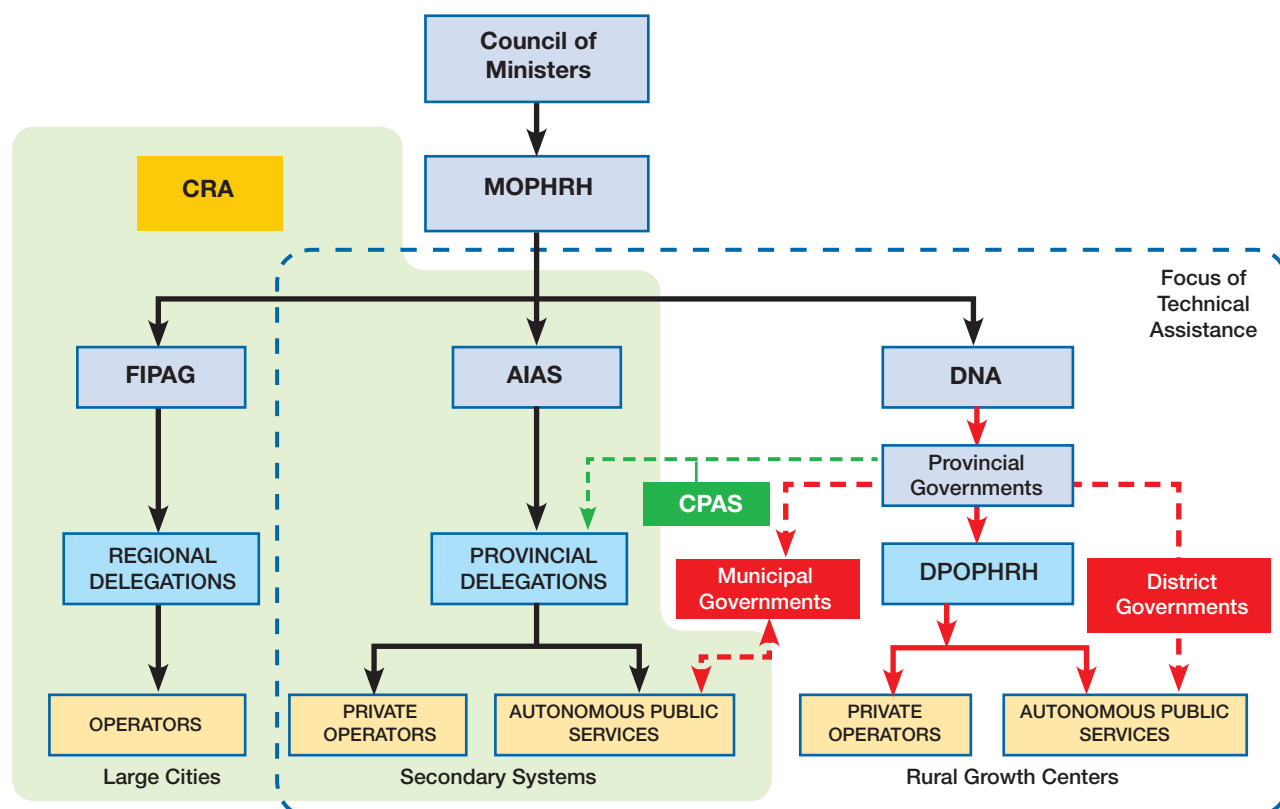
Technically speaking, ownership of all public water supply infrastructures is vested in the Ministry of Economy and Finance (MEF). Management of the public water supply systems is the responsibility of MOPHRH which, jointly with MEF, delegates implementation to FIPAG (principal urban centers as designated by government), AIAS (designated secondary urban centers), and DAS/DNA (rural settlements). Local government (red in Figure 2) plays an advisory and monitoring role at provincial level

TABLE 1: DISTRIBUTION OF RESPONSIBILITIES FOR SMALL TOWNS BETWEEN THE CENTRAL GOVERNMENT WATER AGENCIES

Institution	Areas Covered	Number of Systems	2015 Population
FIPAG	Principal urban centers	15 systems covering: 18 major cities + 3 small towns	5.5 million
AIAS	Secondary systems	130 systems covering: 5 cities + 64 urban towns + 61 rural towns	3.8 million
DAS/DNA	Rural growth centers	>135 systems in >400 settlements, number increasing with new rural settlements justifying piped water systems	4.5 million ^a

^a Subdistrict (*Posto Administrativo*) capitals.

FIGURE 2: SMALL PIPED SYSTEMS INSTITUTIONAL SETUP





Network Extension Works - Mocimboa da Praia WSS.

both formally through CPAS (green in Figure 2), and informally for each individual system; it may also be a service provider through an autonomous department with ring-fenced finances.

The **Water Supply Investment and Assets Fund (FIPAG)** is an administratively and financially autonomous public entity responsible for investment programs and implementation of the delegated management framework in large urban water supply systems. The water supply systems delegated to FIPAG supply provincial capitals, other urban areas of strategic importance, and smaller nearby towns best served by one of these systems. FIPAG systems are expected to be financially self-sustaining through water tariffs and able to repay the mostly concessional loans used to finance capital expenditure.

The **Water and Sanitation Infrastructure Board (AIAS)** is an administratively (but not financially) autonomous public authority responsible for investment programs and implementation of the delegated management framework in the secondary water supply systems under its responsibility. The water supply systems delegated to AIAS supply district capitals and the five cities which were

not incorporated under the FIPAG framework, and is represented at provincial level by a local office. AIAS systems are required to cover only operational costs from water revenues, whilst investment in infrastructure development and AIAS operational costs are a government responsibility. AIAS is still in its infancy and lacks a large number of staff, especially in the provincial delegations, which were not provided for at the time AIAS was legally established, as it was envisaged at that time that the provincial entity was to be a Provincial Government body.

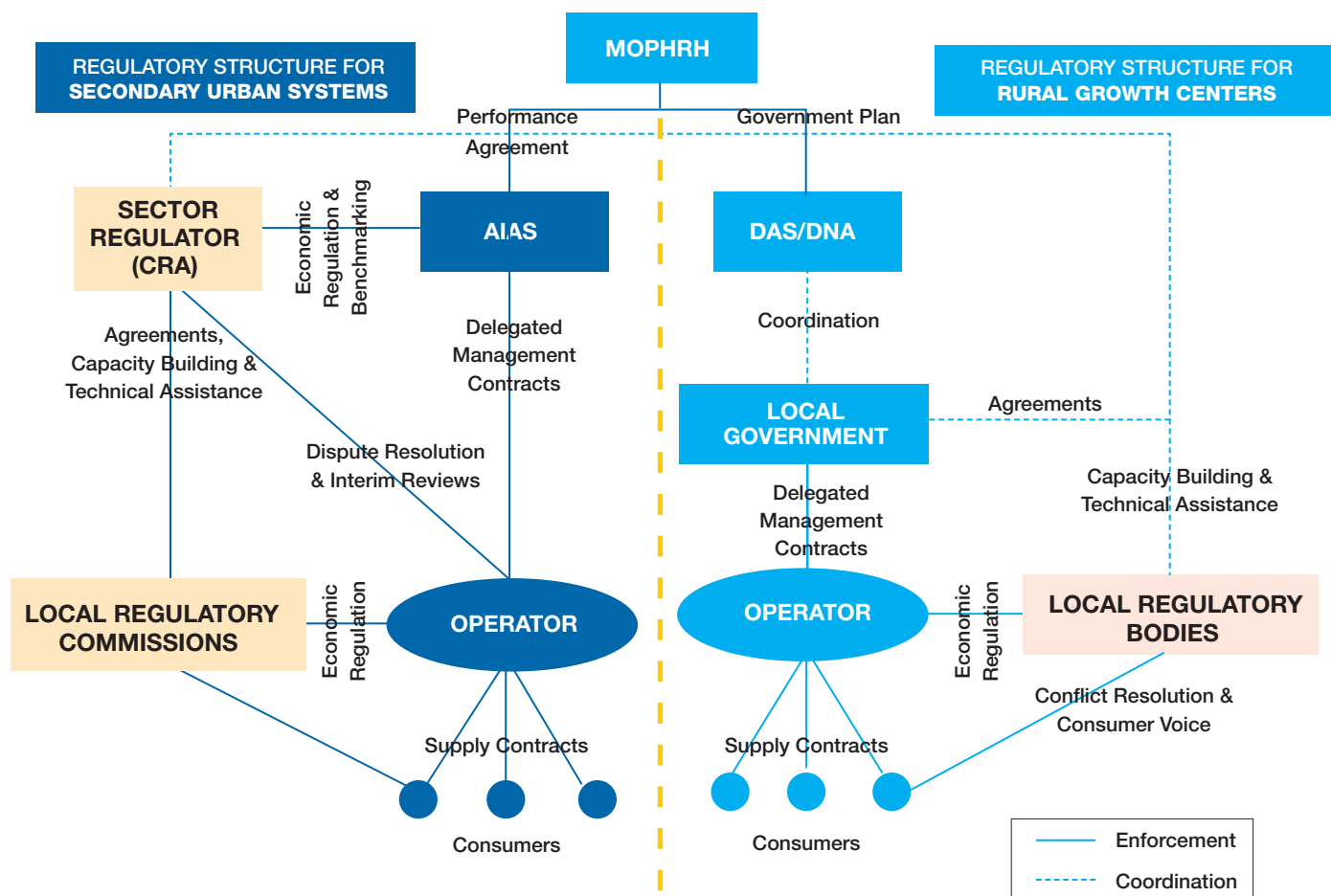
The **Provincial Water and Sanitation Council (CPAS)** is made up of local government representatives and provides strategic guidance and advice to the Provincial Governor on the development of water supply and sanitation services, including the implementation of the delegated management framework at provincial level. The CPAS were created as part of the extension of delegated management to secondary urban systems, and their mandate covers only the AIAS framework. However, due to its relevance in articulating the implementation of local government water and sanitation plans, the CPAS mandate may eventually be expanded to cover the FIPAG and DAS/DNA frameworks.

The **Water and Sanitation Department (DAS/DNA)** is a government department under the DNA with overall responsibility for water supply and sanitation in urban and rural areas. It is responsible for both investment in, and delegated management of, water supply systems supplying rural growth centers (mostly subdistricts or *Postos Administrativos*). As a government institution, DAS/DNA relies on public funding. Some activities may also be undertaken autonomously by non-governmental organizations (NGOs), in consultation with DAS. Much of the implementation of the rural water and sanitation program (PRONASAR) is undertaken by the Provincial Directorates of Public Works, Housing and Water Resources (DPOPHRH), but lines of authority are somewhat blurred between the DPOPHRH and DAS/DNA, which continues to hold direct responsibility for some projects. According with the Guidelines for

Implementation of Rural Water Projects (MIPAR- its acronym in Portuguese) rural communities own and manage their rural water supply infrastructure (wells and boreholes motorized or equipped with handpumps, and small dams) to ensure sustainability of services. The focus is to strengthen ownership of the sources by its users, allowing the government to focus on capital investment and large scale maintenances.

The **Water Regulatory Council (CRA)** is the water supply and sanitation sector regulator responsible for balancing the interests of the main stakeholders in the delegated management framework (government, operators, and consumers). However, CRA's legal mandate covers large and secondary urban centers only. Therefore, delegated rural water supply systems under DAS/DNA are regulated at local level by bodies under local government supervision (Figure 3).

FIGURE 3: REGULATORY ARRANGEMENTS FOR SECONDARY URBAN AND RURAL SYSTEMS



III. Historical Background

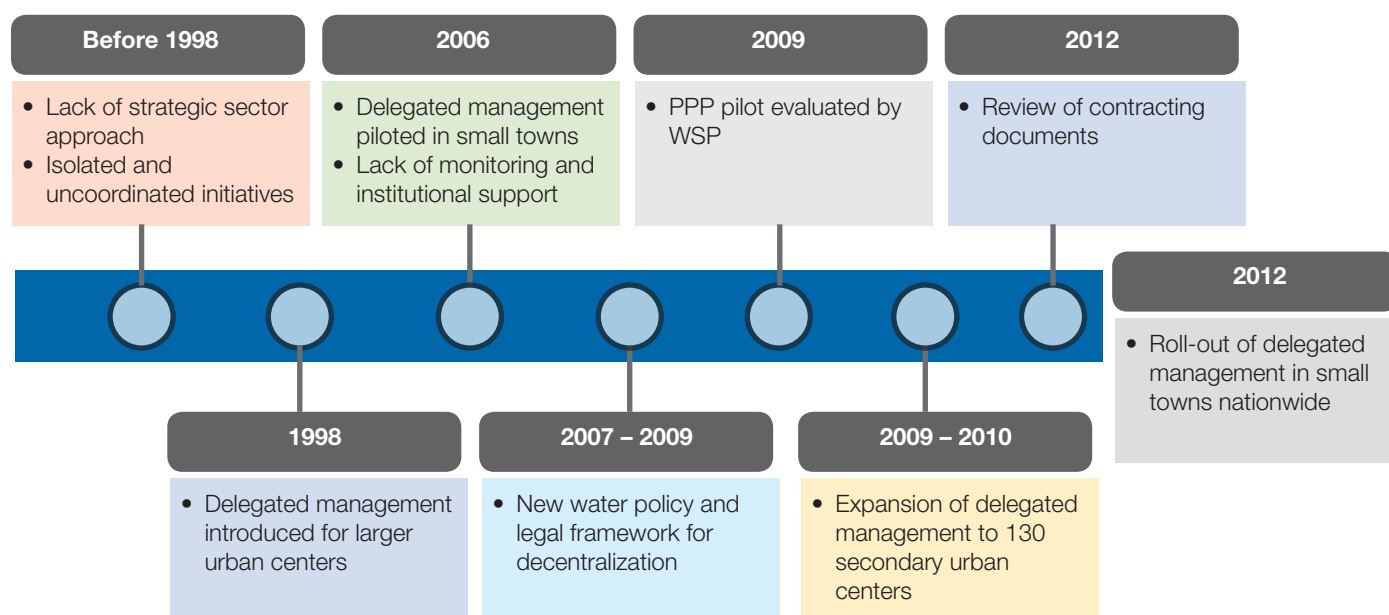
The implementation of the delegated management framework for small town water supplies follows on from other institutional reforms in the Mozambican water sector, as presented schematically in Figure 4. In the past, small town water supplies have been managed under either the rural or urban subsector, and in both cases received a low priority – under rural, because the core of the rural water program is boreholes with handpumps, while small piped systems require a completely different set of skills to develop and manage; and under urban, because they represent less population with higher per capita costs. This led the government to create a third subsector in 2009, with the establishment of AIAS.

Prior to this, there was no defined strategic approach for small towns, and projects were implemented under separate and uncoordinated initiatives. Most systems were operated by local governments lacking technical expertise, and revenues, if collected at all, were not ring-fenced, leading to severe degradation of the infrastructure, poor maintenance, low coverage (less than 10 percent), and failure to cover operational costs.

A similar situation prevailed in 1998 with respect to the larger urban systems, when the government introduced delegated management (Decree 72/98, December 23) based on lease and management contracts. This was the first experience of public-private partnership (PPP) in water supply services management in Mozambique. Since then, the targeted systems have been successfully turned around and achieved over 70 percent coverage (meeting the MDG), as well as recovering costs, including (concessional) loan repayments.

Building on this success, domestic private sector participation (DPSP) in water supply was initially tested in a selected number of small towns under a World Bank-financed pilot in 2006 (the First National Water Sector Development Program). The pilot was managed by the National Directorate of Water (this was prior to the establishment of AIAS). An implementation manual, *Small Piped Water Systems Management Models (Ministerial Order 5/2006)*, was developed and tested in eight towns across the country (Namaacha, Ressano-Garcia, Magude, Massinga, Quissico, Vilankulo, Sussundenga, and Nametil). Only

FIGURE 4: HISTORICAL DEVELOPMENT OF DELEGATED MANAGEMENT IN SMALL TOWNS



rehabilitated and functioning systems were selected for the pilot implementation of delegated management.

An evaluation of the PPP experience in piloted small towns was undertaken by WSP in 2009. The study concluded that although there were positive signs among the tested systems (increased number of connections, quality of services, and consumer satisfaction), there were also challenges to be addressed if this experience was to be successfully scaled up to other towns. Most of the challenges encountered were a direct result of lack of effective institutional support and monitoring for both the public institutions and the private operators involved. The pilot also provided valuable lessons on the importance of active local government involvement.

Meanwhile, the government approved a new water policy in 2007 (Resolution 46/2007, October 30) which brought new strategic developments with regard to small town water supply, and shaped the approach adopted in more specific sector planning tools (the Urban Water and Sanitation Sector Strategic Plan 2009–2025, and the National Urban Water and Sanitation Strategy 2011–2025). These call for:

- Improvement of services management through the involvement of autonomous entities, private operators, and municipal services.
- Expansion of independent regulation to small towns.
- Involvement of municipalities and local authorities in the planning and development of services.

These policies are in line with the implementation of delegated management in small towns and informed the design of the specific tools that were developed. Taking them into account, together with the overall decentralization framework and the lessons from the WSP study on the PPP pilot, existing contracting manuals were reviewed, leading to the roll-out of delegated management in both secondary schemes and rural growth centers from 2012–2013 onwards.

The approach adopted was to tender for a private operator whenever a system was built or rehabilitated, so as to avoid the degradation of the infrastructure, as had happened



Mocimboa da Praia WSS Water Tower.

previously under public sector management. This also ensured that the systems delegated had the basic technical viability that would enable their commercial operation and future expansion funded by operator investments.

Many hundreds of millions of dollars will be required to provide water supply systems for secondary towns and rural growth centers. Government strategy is to increase public investment from domestic and international (development partner) sources, possibly through a centrally managed investment fund, and hand over the operation of these viable systems to private operators. Expansion of the systems will be funded in part by the operators in return for extensions of the contract period. Corporate social responsibility funds, especially from the extractive sector, is another important source of capital, but adequate mechanisms for managing such funds are not in place, and there have been some poor investments due to lack of financial controls.

2009

Year when an evaluation of the PPP experience in piloted small towns was undertaken by WSP.

IV. Implementation of the Technical Assistance

Support was provided under the project in line with the existing government strategy for delegated management of small town water supplies. Given that operators cannot be expected to manage loss-making systems, a basic principle of delegated management is that the system must be in a viable operational state for delegated management to work. At present, this effectively means rehabilitation by the public sector; however, provision also exists for investments by operators, and this may become more relevant as the industry grows and consolidates in the country. Three major stages for implementing delegated management were defined (Figure 5), and challenges faced by the government agencies and other key stakeholders at each stage were identified and addressed. However, before implementation could start, there was a need to

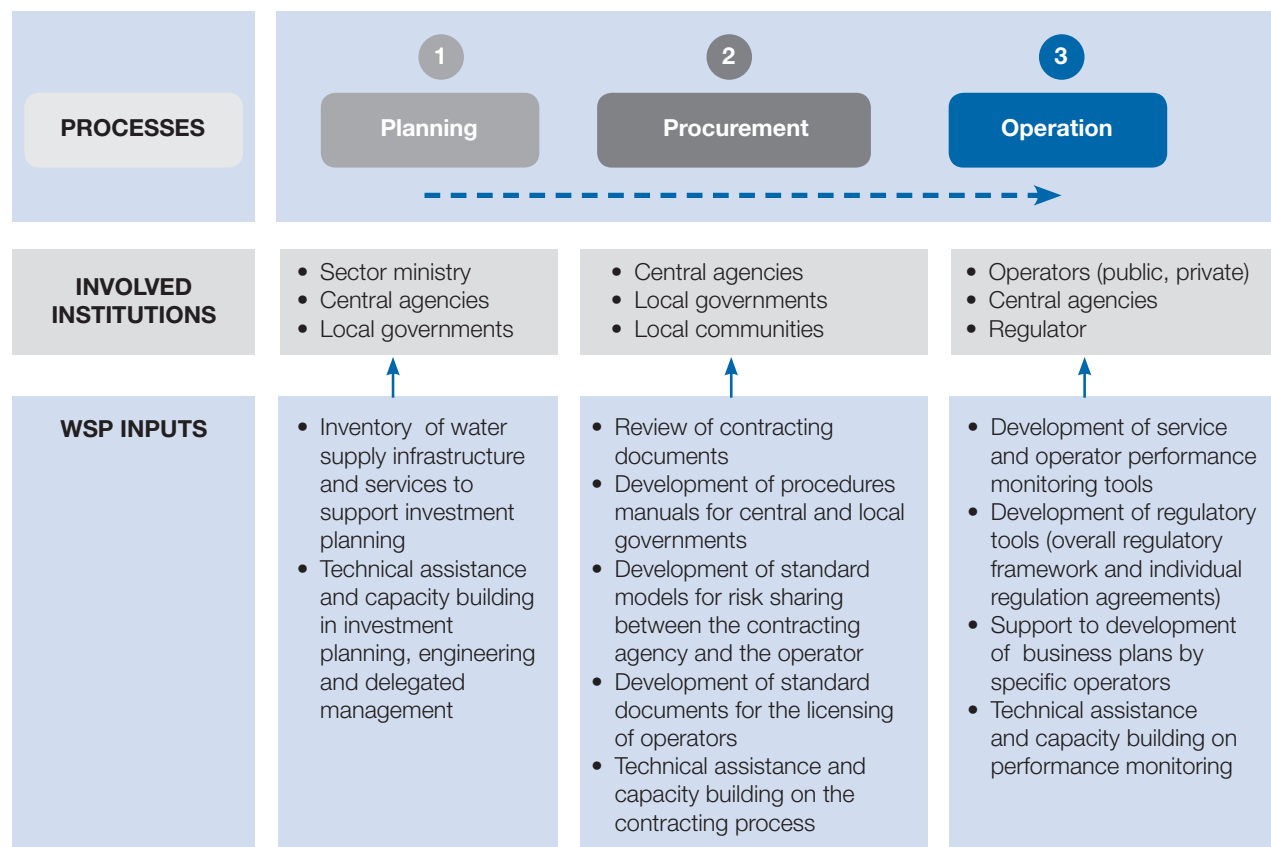
have in place standard contracting processes and guidance documents. There was also a need to define how the delegated services would be regulated by an independent body, in line with the 2007 water policy.

Review of contracting documents and procedures

Prior to 2012 there were no consolidated tools for the implementation of delegated management in small towns. The manuals piloted in 2006 were found to need improvement, as evidenced by some of the findings from the 2009 WSP study, showing, amongst other aspects:

- Contracting requirements unfavorable to smaller local companies and organizations.
- Contracting terms not favorable for operator investments in renovation and network extension.

FIGURE 5: MAIN STAGES OF THE IMPLEMENTATION PROCESS



- Unclear division of responsibilities for investment between asset-holder and operator.
- Unclear roles and responsibilities of local government, communities, and other stakeholders.
- Undefined mechanisms and structures for regulation and monitoring.

A comprehensive review of the piloted contracting documents and procedures for implementing delegated management was made. Major changes were made in regard to simplification of contracting process (the move from a special to a simplified process and the removal of a bank guarantee requirement at the bidding stage), clarifications of contracting and regulatory responsibilities (allocation of responsibilities between central agencies and local governments) to reflect the new framework. This was undertaken for both AIAS and DAS/DNA documents, and the most significant improvements made to the pilot documents are presented in Table 2.

Although it is recognized that the contract period is a major incentive for the private sector to invest resources in network extension and other minor capital investments, it was maintained at five years, with a maximum extension of two years, as a safeguard against poor operators. It was agreed that a limited length should be established for the first implementation term, and that this could be

revised on a positive evaluation of operator performance. The definition of minimum service standards, through performance indicators, together with clear risk sharing between the contracting agency and the operator with regard to investment in system extension, are expected to minimize this challenge.

With the review of contracting documents, both AIAS and DAS/DNA were equipped with the necessary tools and clear procedures for engagement of professional operators in management of their water supply systems, which they adopted and started using in 2012. Although the process has only been running in practical terms for about three years, almost all the tools are being used already. For instance, service and operator performance monitoring is now being undertaken based on standard reports developed at this earlier stage. WSP was actively involved in the review of contracting documents through provision of legal technical assistance and facilitation of stakeholder discussions at both central and local level.

Planning

In this context, planning is the process of establishing not just goals but also procedures to achieve those goals. Sector goals for small town water supply systems are defined in the national water and sanitation strategy (ENASU 2011-2025), and establish the targets of 36 percent coverage in 2015 and universal coverage by 2025.

TABLE 2: MAJOR CHANGES MADE IN CONTRACTING DOCUMENTS

Pilot Documents (2006)	Revised Documents (2012)
Special procurement process	General procurement process (simplified contracting process)
Lease contract	Lease contract
Contracting agency fee, variable regulation fee, and guarantees	Contracting agency fee, fixed regulation fee, and no guarantees required
Without performance indicators and targets	Include performance indicators and targets
Contracting parties: DAR/DNA ¹ /operators	Secondary urban systems: AIAS/operator Rural systems: Local government (delegated by DAS/DNA)/operator
Operators: public and private	Commercial entities, community organizations, and public entities
Regulator: Local forum and local commission	Secondary systems: Sector regulator (CRA), local commission with Sector Regulator representative, and local commission Rural systems: - Local bodies

¹ Rural Water Department under DNA, prior to 2012.

BOX 1: CONTRACTING DOCUMENTS DEVELOPED WITH WSP TECHNICAL ASSISTANCE

- 1) Tender and contracting procedures, documents and guidelines.
- 2) Regulatory framework for rural water supply systems.
- 3) Collaboration agreement between AIAS and local government for implementing delegated management.
- 4) Standard documents and tools:
 - System inventory report;
 - Tariff computation model;
 - Standard tender advert;
 - Evaluation forms; and
 - Standard lease contract.

The agency responsible for secondary systems (AIAS) finalized the drafting of its investment plan in 2013 to achieve those goals, with the support of an external consultant. However, it was recognized that although the investment plan drafted provides a general indication of the effort and resources required to reach these objectives, it was based on available secondary data, which was not detailed and consistent enough for accurate informed planning. This same document recommended making a detailed inventory of water supply services to improve the findings and recommendations provided.

The project supported AIAS in making a detailed inventory of water supply systems, providing both resources and technical assistance, starting in Nampula and Cabo Delgado provinces in 2013, and Niassa province in 2015. To date, 50 water supply systems (well over a third of the total number assigned to AIAS) have been covered. Each inventory includes a detailed description of the existing infrastructure, its physical condition, management structure, technical and financial performance (where applicable), and proposed short and long term interventions. It also categorizes water supply systems by the size of settlement served

and the magnitude of required investments – smaller investments will work better if packaged together, whilst larger ones can be managed on a stand-alone basis. It also includes an assessment of sanitation conditions in each town inventoried.

With this exercise, AIAS, provincial and local governments are equipped with the necessary inputs for informed planning, namely accurate technical, financial, and management data of the systems inventoried, proposals for short term interventions, including estimated costs, and general ideas of required long term investment in infrastructure to achieve sector strategic targets. The inventories are being well accepted as important planning tools, and as a result the United Nations Children's Fund (UNICEF), which also supports the small towns' water supply program, has shown interest in supporting similar exercises in other provinces, using the same methodology developed and implemented with WSP support.

Other planning activities focused on sanitation have been undertaken, specifically the development of sanitation master plans for six towns in Nampula province (Ilha de Moçambique, Mecuburi, Monapo, Rapale, Ribaue and Namialo), and for Mocímboa da Praia in Cabo Delgado province, all of them funded by Australian Agency for International Development, and implemented by UNICEF and the World Bank sponsored WASIS project.

Procurement of operators

The operator procurement process follows national procedures, approved by Decree 15/2010. It covers the entire process, from the decision to delegate the system, preparation of tender documents, tendering, evaluation, and contract award. The whole procurement process is undertaken in collaboration with provincial and local governments and communities. Thus, to promote transparency and build trust, the evaluation committee includes representatives from AIAS or DAS/DNA as appropriate, the provincial government, district government or municipality, and representatives from local civil society organizations. Tender documents are available at both provincial and local level, and may be submitted at either of these levels.

TABLE 3: RISK SHARING MODEL FOR SMALL TOWN DELEGATED MANAGEMENT CONTRACTS

Risk	Assumed by:	
	Asset Holder	Operator
Maintenance and repairs to infrastructure and equipment (intake, treatment facilities, transport, storage, and distribution network)		✓
Rehabilitation of intake infrastructure (compressors, borehole cleaning, filters, residual water pumps, chemical treatment equipment, etc.)	✓	
Dam and weir cleaning	✓	
New intake infrastructure	✓	
Renewal of power sources (generators, transformers, pumps, solar power inverters, etc.)	✓	
Renovation of solar panels (up to 3 panels)		✓
Renovation of electricity supply mains (up to 500 meters)		✓
Rehabilitation of small civil structures and water distribution points		✓
Extension of main primary network pipes (up to 500 meters)		✓
New secondary network pipes (up to 1,000 meters)		✓
Tertiary network extensions		✓
Connections within the existing network		✓
Construction of standpipes	✓	
Totalizing water meters	✓	
Domestic water meters		✓

The project supported the development of procurement documents which are being used for both secondary systems and rural growth centers (listed in Box 1). Procedures manuals for central government, local governments, and operators were also developed, with the aim of defining and clarifying the roles and responsibilities of each main stakeholder in the procurement process, as were standard forms for licensing interested entrepreneurs who are not legally established. A standard model for risk sharing between the contracting agency and the operator was also developed, and forms part of the contract (Table 3).

This unambiguous assignment of risks is along the lines of a lease contract² whereby the operator carries more extensive repair and renewal obligations than in *affermage*

contracts³ and the operator may also be required to make capital investments, for example, partial renovation of power sources, 500 meter extension of main primary network pipes, up to 1,000 meters of new secondary network pipes, and domestic water meters. It was designed to avoid the recurrence of previous incidents where systems remained out of service for weeks or even months due to disputes about responsibility, affecting the overall objective of increasing access to sustainable, affordable, and good quality water supply services. In the cases where the operator will make capital investments, the operator is required to submit adequate justification, such as records of operation, inventory, and the capital investment plan, as part of this request. It is subject to asset holder (AIAS) approval so that proper compensation can be established,

² Lease contract: Contract under which the operator is granted the right to exploit the assets for a fixed period, generally five to 10 years. The operator bears more extensive repair and renewal obligations than in *affermage* contracts. The operator may also be required to make capital investments. The operator typically bears a major revenue risk as it pays a fixed lease fee to the authority out of revenues as well as taking its own fees (Delmon 2014).

³ *Affermage* contract: Used in civil law jurisdictions and is similar to a lease. Under an *affermage* the operator 'fermier' has delegated to it the obligation to supply customers with potable water in the delegated area as well as operation and maintenance obligations, and a limited obligation to repair and replace (typically only minor parts). Revenue comes from tariffs and the operator's fee is paid out of revenues. Any revenues collected above the operator's fee are paid to the authority for investment in the scheme. The authority is owner of the scheme and is responsible for major repairs, renewal and expansion. *Affermage* contracts tend to be for a medium period of time (from three to 10 years) (ibid.).

mainly through extension of the contract duration. At the end of the extended contract period the assets are handed to AIAS.

With the expansion of the delegated management framework, and when appropriate capacity is developed within local governments, the level of risk transferred to operators might be lowered, because some capital investments will be made by local governments who are ultimately responsible for the provision of basic services. This will not be just an afterthought process, and will require efforts by the central agencies in building local capacity, streamlining responsibilities, and developing toolkits and methodologies to support local government involvement in water services provision.

WSP also supported implementation of some stages of the procurement process, namely, engagement of potential operators at the tendering stage, and legal technical assistance on contract drafting and signing, to ensure compliance with national procurement legislation.

The tools developed are facilitating the implementation of the procurement process at all levels. For instance, the availability of clearly-drafted procurement documents helped DAS/DNA to decentralize the whole process to local governments, including contract signing by the local government and final approval by the provincial government.

Operation

Operation includes all activities performed by the operator aimed at ensuring that safe drinking water can reach consumers, and includes the operation, maintenance, and management of the water supply system. The whole delegated management approach is aimed at ensuring that consumers can sustainably access better services, which in turn depends on operator performance. It is recognized that private sector involvement in the management of water supply systems in Mozambique is still at an early stage, and that entrepreneurship in general is still weak. Capacity building for operators is therefore part of the delegated management strategy.

A number of tools for private operators, performance monitoring, and other support programs were developed and used in line with this strategy. These tools include an operator procedures manual, a rural water supply systems operation manual, standard forms for performance, commercial and financial reporting, and development of specific business plans for some operators. AIAS operators are benefiting from comprehensive support from the Dutch-funded PO-15 (15 Operations Program) project, which includes training in water production and distribution, financial management, and management software. The same project supports a funding mechanism to facilitate initial operations, network extension, connections, minor maintenance costs, and management



Operator training sessions in the classroom (above) and in the field (right).

equipment (computers and software). WSP supported the development of specific business plans and training programs for some of the DAS/DNA systems, in partnership with HELVETAS Swiss Intercooperation.

Regulation

Regulation follows the arrangement shown in Figure 3. For secondary systems, the sector regulator (CRA) has the legal mandate for direct regulation of services delegated by AIAS. This is undertaken at local level through a local regulatory commission or local regulatory authority, under an agreement with CRA, whereby it provides guidelines and technical assistance to the local bodies. Although there is no legal mandate to intervene in rural water supply services, the sector regulator can also provide technical assistance to local regulatory bodies, on request.

The project supported the development of two main regulatory tools which have been adopted for the AIAS systems:

- The **Regulatory Agreement**, signed between CRA and AIAS, as contracting agency for all secondary systems, which defines responsibilities, the object of regulation, the content of regulatory targets, and applicable general rules.
- The **Regulatory Framework**, which is a system-specific document setting out indicators, their reference values, and targets for service quality and operator performance.

Institutional development and capacity building

Given the number of new institutions and extensions of the mandates of existing ones, public sector institutional development and strengthening was directed at both central and local level institutions. It was focused on three main pillars: support to decentralization, technical assistance, and training.

Support to the decentralization process: Support was provided to AIAS on the establishment and development of its provincial delegations responsible for implementing water supply and sanitation projects at provincial level. Technical assistance was also provided to the establishment of the CPAS, which provides advice to the Provincial Governor and AIAS on small town water supply within

the province, and comprises representatives of local government and relevant provincial directorates. To date, four provincial delegations of AIAS have been established (Cabo Delgado, Nampula, Zambézia and Inhambane provinces) out of a total of 10 provinces in the country, and two CPAS (Cabo Delgado and Nampula).

Technical assistance: Long term technical assistance was, and is still, being provided to AIAS and its provincial delegations. This covers institutional development, legal aspects, engineering, procurement, and financial management. Short term technical assistance is also being provided to the same institutions, to DAS/DNA and to local governments on delegated management procedures.

Training: AIAS and its provincial delegations benefited from training modules similar to those provided to the operators. The main objective was to build up operational and monitoring capacity, and training modules were directed primarily to provincial delegation staff. To date, three staff members have been trained in production and distribution, 10 in project management, four in financial management, one in software management, and 13 in operating the water supply and sanitation database.

The project directly supported:

- Establishment of two AIAS provincial delegations and two CPAS, in Cabo Delgado and Nampula.
- Long and short term technical assistance to AIAS and the two provincial delegations.
- Short term technical assistance to local governments in both secondary and rural systems, including for the establishment of a semi-autonomous municipal water service entity in Municipality of Manhica, in partnership with the Spanish non-governmental organization (NGO), *Ingeniería para El Desarrollo Humano* (ONGAWA).

Due to government limitations, AIAS has to date managed to contract only 30 percent of its approved staff. Long term technical assistance was provided, which enabled AIAS to reduce its capacity shortfall, as evidenced by a 170 percent increase in expenditure from 2011 to 2014 (see Figure 7), over which period 14 small town systems were rehabilitated or upgraded and 14 private operators contracted.

V. Key Results

Delegated management framework implementation

Mozambique's water policy calls for delegated management in small towns. Following the production of revised contracting documents in 2012, solid progress has been made, with a total of 39 systems now contracted to private operators (19 rural and 20 urban). The growing number of systems contracted (Figure 6) shows how momentum is building, especially amongst the AIAS systems, with eight contracted in the course of 2015 alone, and a further five in an advanced stage of procurement.

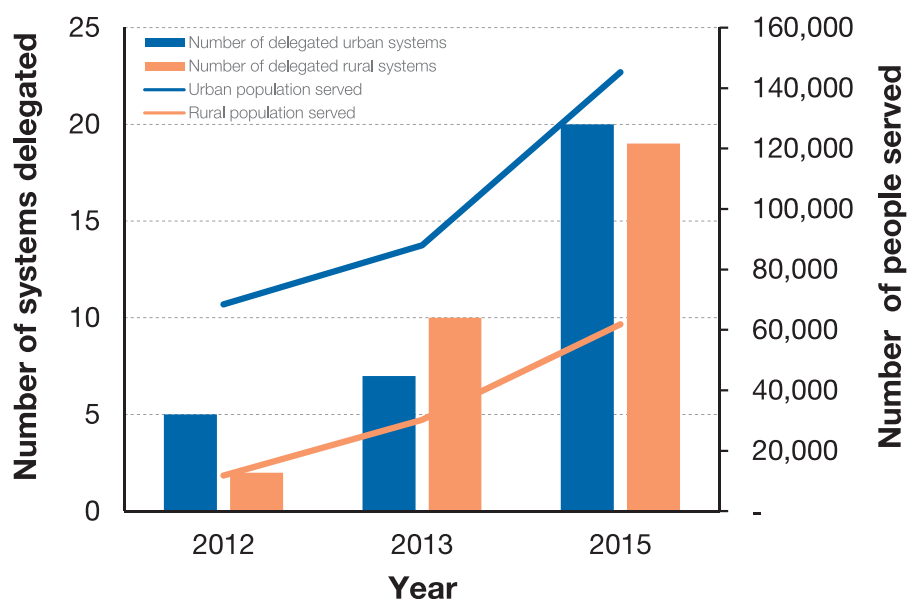
It proved difficult initially to attract water supply operators, since this is a new area for Mozambican entrepreneurs. However, as the delegation of systems accelerates, more operators are gradually becoming interested in the water business, and a number of them have bid and signed contracts for second and third schemes, despite their limited time in the business. It is still early to predict how this sector will grow, but the tendency is towards a mixture of businesses running their local system, and others specializing, running a number of systems over a wide geographical area. Of those contracted to date, about

a third come from a commercial background and about two-thirds from a professional engineering background. Box 2 gives an overview of a typical company.

It should be noted that of the initial group of six operators involved in the pilot in 2006, two were replaced in 2015. In both cases this was due to the removal of the initial operator by the local administration, with an eye to the revenues generated but no understanding of the business. In both cases, the services collapsed under public sector administration, and the AIAS had to intervene. Both administrations recognized the soundness of an autonomous operator, and the AIAS returned the systems to private management through the normal procurement process.

Operators are selected on the basis of technical proposals, as yet they are not familiar enough with the business to make reliable financial offers. The immaturity of the market may also be a reason that firms have been slow to move up to operating multiple systems, although that is now beginning to happen. FIPAG was requested to run the Ilha de Moçambique system, as it is relatively large, no suitable bidder came forward, and it lies between the

FIGURE 6: CUMULATIVE NUMBER OF SYSTEMS DELEGATED AND POPULATION SERVED



BOX 2: COLLINS SISTEMAS DE ÁGUA LDA

Collins Sistemas de Água Lda (CSA) was legally established in 2009 as a consultancy in water treatment systems, water supply, sanitation, and environment. CSA's first venture into water supply management was in Moamba, a district capital, immediately after the system was rehabilitated in 2013. At that time there were six commercial connections, no domestic connections, and 19 standpipes. Two years later there were 2,024 domestic and 49 commercial connections, and five standpipes, providing about 75 percent coverage. According to CSA, the main factors driving this rapid growth were the good condition of the network, CSA's campaign promoting the advantages of domestic connections, and the option of paying connection fees by installments, backed by CSA's own investments in network expansion. CSA plans to reach 100 percent coverage in Moamba by 2018.

In 2015 the company was awarded two more water supply contracts in central Mozambique. It has adopted a central ICT system for managing the three systems, allowing many management tasks to be undertaken at its headquarters in Maputo, including invoice processing, financial management, human resources management, and reporting to the regulator and the AIAS. This delivers economies of scale, cross-learning, and an integrated management approach.

Current challenges include physical losses (49 percent), a less than ideal revenues collection ratio (82 percent), high input costs (principally energy and chemical products), scarcity of equipment and spare parts on the local market, and a lack of qualified staff. However, AIAS is providing a certain amount of technical support, training, and some basic equipment under its operator capacity-building program.

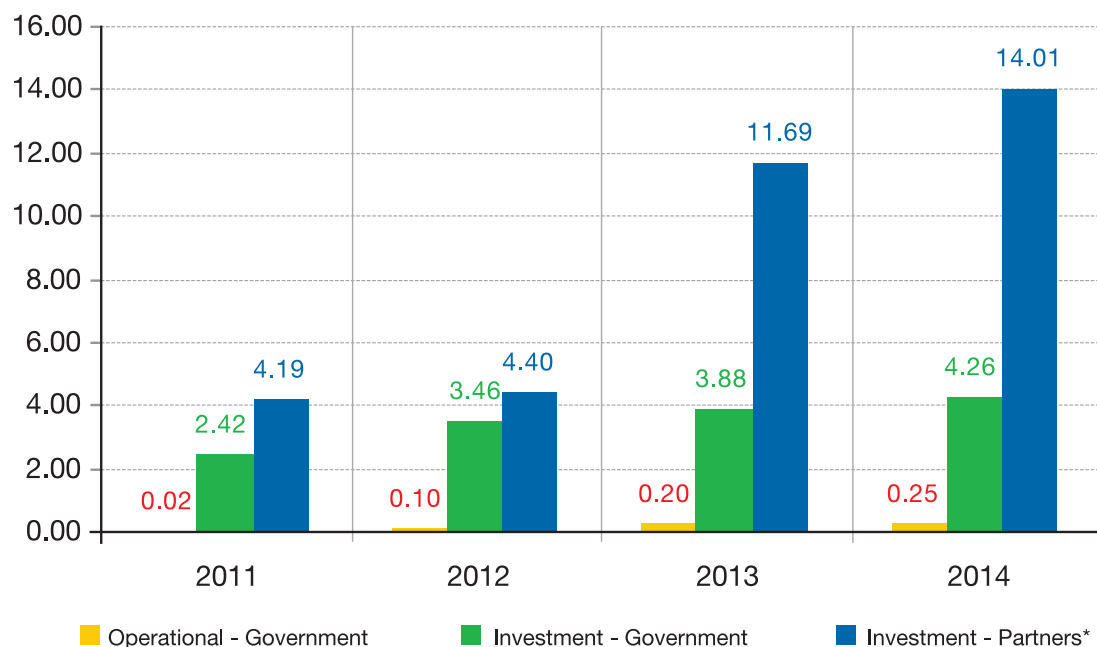
two FIPAG systems in Nampula and Nacala, but it has not taken on any others, possibly due to its own on-going restructuring. As the market matures and the operators gain experience, it is likely that more consolidation will occur. It is considered that this natural or organic mode of growing the industry will yield more sustainable results than imposing preconceived models to realize economies of scale, as it will follow the business logic of the operators concerned.

As the AIAS systems are regulated, there is a statutory need for monitoring data, apart from AIAS's own interest in tracking operator performance. Monitoring by AIAS started to function from January 2015, although not all operators are yet on board. The monitoring system is based on the tools developed in the contracting documents review process – Regulatory Agreement, Regulatory Framework, and standard service and operator performance reports. However, in the rural systems, a systematic regulation and monitoring structure is yet to be developed. This is due mostly to historical reasons, as the rural systems were traditionally community-managed, and legal instruments requiring external monitoring are not in place.

Public sector performance

The major outcome of the public sector institutional development and strengthening was increased capacity for implementing capital works and delegated management. AIAS has been gradually increasing its output in terms of the number of systems rehabilitated and delegated to the private sector. Since 2011, when AIAS started operating with its own budget, 14 rehabilitation works have been completed, nine systems have on-going works and 16 have already been delegated to private operators. AIAS investment expenditure is also showing healthy growth, as can be seen in Figure 7.

In addition, the services and operator monitoring system is already in place and partly operational. AIAS is now receiving data from about a third of the operators on a monthly basis. These are reviewed and consolidated reports submitted to the CRA, and operators are also provided with feedback. Inventories of water supply services were finalized in the three provinces of Nampula, Cabo Delgado, and Niassa, accounting for 50 water supply systems (38.5 percent of the total AIAS towns).

FIGURE 7: AIAS FINANCIAL PERFORMANCE PROGRESS BY BUDGET CATEGORY (US\$ EQUIVALENT)

* World Bank; Australia; Netherlands; European Union; UNICEF

Although operators are obliged to provide operating data, sanctions are not being applied when they fail to do so; rather, a technical assistance approach is being adopted whereby the operators are assisted to understand the usefulness of such data for their own managerial purposes. Data verification and validation is not yet systematic, but is under the responsibility of the provincial delegations of AIAS (urban systems) or the DPOPHRH (rural systems).

Regarding institutional development, the two CPAS are also operational, advising AIAS on water supply and sanitation development within their provinces, as set out in their mandate. The pictures below show a working session of the Cabo Delgado CPAS. Four provincial delegations of AIAS are also operational, having been initially established almost entirely with development partners' support, due to their not being part of the



Above and right: A CPAS working session in Cabo Delgado.

legally recognized framework, as the government has not yet managed to revise the legislation in accordance with its administrative decision not to decentralize control to the provincial governments. As of 2015, AIAS has started staffing the existing delegations by seconding from headquarters technical and supporting staff covered by government budget allocations, which shows the government's commitment to and ownership of the decentralization process as revised.

For the 19 rural water supply systems rehabilitated by DAS/DNA, the procurement of operators was conducted totally at local government level, showing their increasing capacity in this regard, although a systematic monitoring system is yet to be established and operationalized.

Private sector performance

The basic assumption in engaging professional operators for the management of water supply systems is that it will contribute to their operational sustainability. Operational costs are to be covered by user tariffs whilst government will concentrate its efforts on major capital investments. Clearly, good performance by operators is essential to ensure sustainability. This means covering operational costs and making some profit in order to maintain the business and acquire the necessary resources for maintenance, minor repairs, and network expansion.

Most of the operators are still within the adaptation period, having been in place only one or two years. Those who have benefited from training have already started reporting systematically to AIAS on their operational

performance. The data initially available (based on those operators actually reporting) suggest that, as observed in the pilot, there is potential to achieve operational cost recovery. Early results (see Table 4) show average coverage of operational costs at 74 percent through collected revenues, increasing to 96 percent if the billed amount is considered. With marginal improvements in reducing physical and commercial losses, which are still high, the initial target set by the regulator of 115 percent cost coverage is within their reach over the short term.

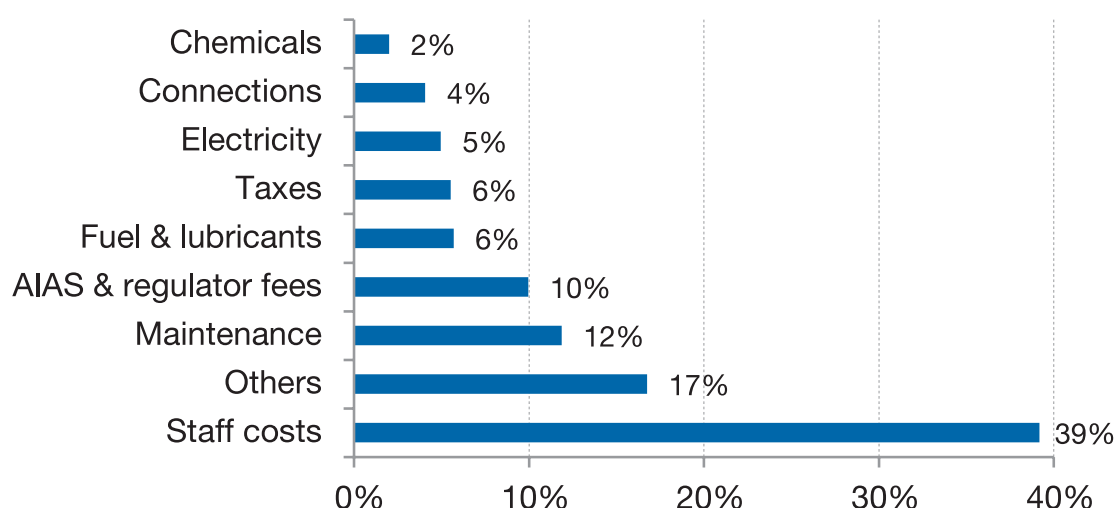
Operator financial performance is also expected to improve with new connections, although this may not result in major change to the structure of operation costs, as most of them are related to staff (averaging 39 percent, see Figure 8) which is still oversized at 29 (typical of systems with few connections).

It should be noted that these results are from initial operator reporting and may not be accurate, because they are still becoming familiar with reporting requirements in terms of data collection and computation. For instance, it seems that the average electricity costs are too low compared to other costs, although some of them are gravity schemes.

Increased numbers of connections will nevertheless result in reducing the weight of staff in the system's cost structure, and therefore improve financial efficiency. An indicative example can be taken from the Vilankulo water supply system, first delegated in 2006, which has shown an improvement in staff per 1,000 connections from 24 in 2005 to a present figure of 11, with a substantial number

TABLE 4: SELECTED INDICATORS OF OPERATOR PERFORMANCE

System	Unaccounted for Water	Revenue Collection Efficiency	Operational Cost Coverage		Staff per 1,000 Connections
			Per Collected	Per Billed	
Mocimboa da Praia	69%	45%	0.61	1.13	13
Ribaué	N/A	78%	0.79	0.74	30
Ilha de Moçambique	12%	56%	0.80	1.08	15
Caia	25%	53%	0.70	1.12	22
Nhamatanda	21%	77%	0.88	1.17	57
Bilene	69%	81%	0.88	0.9	49
Moamba	51%	82%	0.55	0.57	15
AVERAGES	40%	67%	0.74	0.96	29

FIGURE 8: AVERAGE REPORTED OPERATOR COST STRUCTURE

of new connections established at its own cost within the period. This pattern is typical, with many operators having made moderate investments so as to be able to sell all the water from the source works. However, there have been few, if any, operator investments in increasing the overall capacity of the systems.

At this stage it is not possible to evaluate the rural growth center operators because there has not been much progress in establishing a monitoring system within this group. However, it is not expected that the immediate challenges of physical and commercial losses faced by the AIAS systems now reporting will be markedly different from the other AIAS and the rural systems.

Performance indicators are not very impressive, despite the fact that the delegated systems have been recently rehabilitated, due principally to the age of pipework that was not replaced (typically >40 years, dating from before independence). Due to the insufficiency of many sources, further investments will be required to grow the systems to full coverage. However, performance indicators in the regulatory framework for each system are set envisaging that operators will gradually replace networks over time.

Water supply services performance

The ultimate goal of this subsector reform process is to provide improved water supply services to more people, especially the poor. For a consistent and accurate evaluation

TABLE 5: COVERAGE AND STAFFING IN VILANKULO (2005–2015)

Year	2005	2009	2015
Domestic connections (5.3 users)	242	1,520	2,940
Standpipes (300 users)	6	6	19
Population served	3,083	9,856	21,282
Town population	35,376	42,109	54,685
Coverage rate	9%	23%	39%
Staff	6	26	33
Staff per '000 connections	24	17	11

of the impact of the multiple interventions made, a much longer monitoring period would be required. However, some early results (which need to be taken with caution) can be taken from the seven operators which started to report regularly and consistently to AIAS in the first quarter of 2015.

The most significant results to date are shown in Table 6, and it can be seen that the delegated systems are operating seven days a week, the operators are supplying water to consumers for at least seven hours a day (on average 12), and per capita consumption is above the minimum requirement of 50 liters a day, as established by the Mozambican regulation for yard connections (which is the predominant service level in these service areas).

Domestic connections also show an increasing trend – 7 percent overall within the first semester of 2015. This rate of increase is expected to rise, as once potential consumers become informed and confident of the services provided, they will become more likely to request new connections. For instance, in Vilankulo, one of the 2006 pilot systems (and still with the same operator), domestic connections almost doubled from 1,520 in 2009 to 2,940 in 2015.

Consumers are also receiving feedback on complaints within an acceptable period of time – on average, 98 percent of consumer complaints are satisfied within an average of three days, which is within regulatory targets (100 percent feedback in five days).

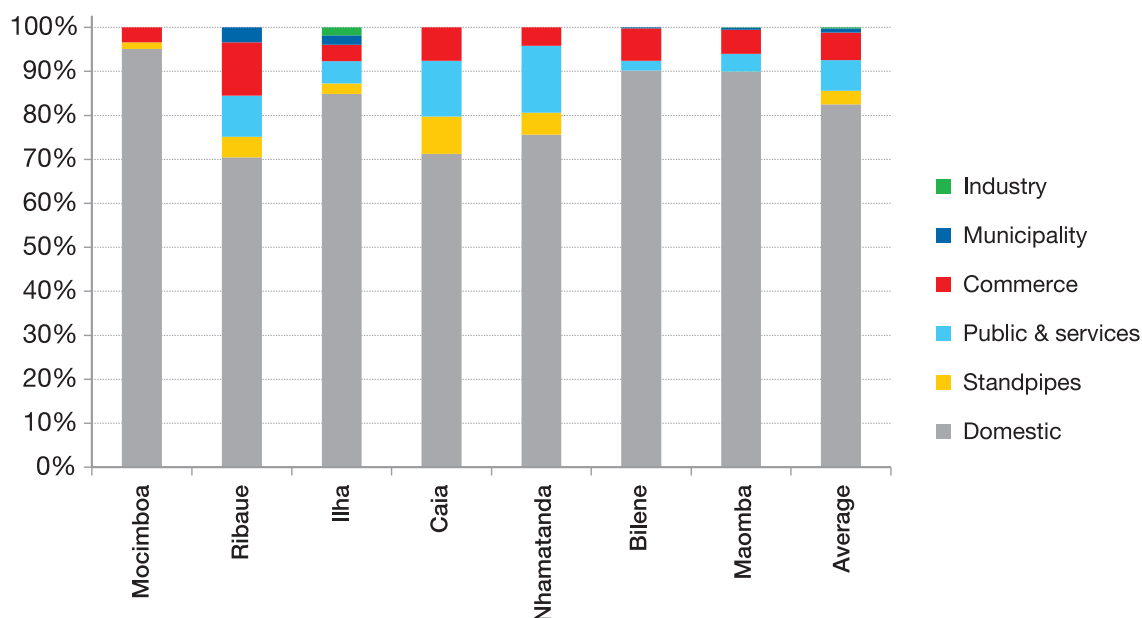
Figure 9 shows that domestic consumption accounts for more than 70 percent of the total water demand in all systems (over 80 percent on average), underlining the social nature of water services in these systems, and the limited potential for high-value commercial customers.

The available data also indicate that the services are, in general, affordable to consumers. Although the water policy is clear that tariffs are to be set per system, CRA has set a uniform domestic tariff at US\$0.50/m³ for in-house and yard connections, and US\$0.28/m³ for standpipes, due to the lack of historical data on system costs. The tariffs will be adjusted once operators have been in the field long enough (a year in most cases) for consistent operational costs to be available; however, only minor adjustments are to be expected, since the initial data show that they are already close to covering operational costs. The monthly fixed fee per domestic connection is equivalent to US\$1.40, and there is no fixed fee for standpipes. Assuming that monthly domestic consumption for low income families falls within the range of 0–10 m³, this tariff structure allows them to keep their water bill below 5 percent (3.6 percent) of two minimum wages, as at 2015 the minimum wage is equivalent to US\$88.50 (Decree 69/2015).

2,940 Number of domestic connections in Vilankulo (one of the 2006 pilot systems) as at 2015 – almost double from 1,520 in 2009.

TABLE 6: SELECTED WATER SERVICES PERFORMANCE INDICATORS

Towns	Population	Coverage	Distribution Hours	Per Capita Consumption	Metered Connections
Mocimboa da Praia	53,351	73%	12	90	96%
Ribaué	26,330	14%	24	91	98%
Ilha de Moçambique	55,197	38%	12	131	97%
Caia	27,794	20%	11	91	98%
Nhamatanda	35,871	7%	7	130	98%
Bilene	8,605	15%	7	152	88%
Moamba	16,409	75%	12	50	95%
Averages		38%	12	105	95%

FIGURE 9: WATER CONSUMPTION PATTERNS

A rehabilitated and delegated water supply system in Chibuto.

Water quality monitoring seems to be a major challenge. Despite being required to report on residual chlorine, more than 50 percent of operators did not perform any test during the first semester of 2015. As water quality is a key aspect of water supply services, with a direct impact on consumers' health, providing operators with testing

equipment might be considered. In addition, capacity building for local authorities on timely local monitoring would be useful. The situation is expected to improve as the regulatory framework for small systems becomes more established.

VI. Key Lessons and Recommendations

Lessons

a) Development of water supply operators in the domestic private sector

This experience shows that, given the right institutional and legislative environment, the domestic private sector can emerge, and become interested in, the water supply business for the benefit of consumers – even in a country where water is not a traditional business and the private sector in general is weak. Operators in the field are now bidding for new systems despite being newcomers to the water business, or as entrepreneurs.

Appendix C sets out the background of 10 operators who, between them, are responsible for running 14 systems, and some summary statistics are presented below:

- **Where based:** same town (2); same province (7); outside province (5).
- **Other business areas:** civil works and consultancy (7); commerce (4).
- **Previous water experience:** equipment supply (1); works supervision for small piped systems, boreholes and latrines (2).
- **Age of company:** 0-5 years (6); 5-10 years (2).

Although this is still a small group of operators, some tentative conclusions can be drawn:

- Flexibility by way of allowing bidders to tender without bank guarantees or a track record (some were registered only during the bidding process) allowed interested parties to come on board.
- There is an even split between systems run by a local (same province) operator or one from another province, which shows both local and national level interest.
- Entrepreneurship would appear to be more important than a background in the water industry as a factor bringing operators into the system.

It should be noted, however, that some of the earliest procurements failed due to lack of bidders. A systematic process of local publicity via local radio stations, public

meetings and notices, in addition to the standard publication of calls for tender in the national press, proved effective. Another factor that may have facilitated the emergence of operators is the existence and visibility of small-scale independent operators, especially in Maputo, but also throughout the country, which have established the fact that selling water is a viable business.

b) Prior experience of delegated management

The extension of delegated management to small systems is based on more than 15 years of experience with the larger systems under FIPAG, and around five years of experience under the pilot program for small systems. This allowed for a basic understanding by politicians and public officials of roles and responsibilities under delegated management, and the identification of issues such as the need for local government to be strongly involved in planning capital investment and overseeing operators. Earlier failures in this regard have led to inappropriate infrastructure investments and confusion over reporting lines for operators. Local government is, in any case, very often the first point of contact for consumers with complaints, despite the fact that it is not directly responsible as a contracting party.

c) Flexibility

The details of the implementation framework for delegated management have been developed over time, through a ‘learning by doing’ approach. This has allowed the accommodation of local governments who have decided to establish an autonomous municipal entity instead of a private operator, and the progressive improvement of the operators’ lease contracts.

Although it was always understood that clustering of several small systems under one operator would be desirable to generate economies of scale, by adopting a piecemeal process, starting small and gradually growing in volume, a much more robust and stable framework for operator management has been developed, which would have been difficult if large clusters had been put out to tender initially. This gradualist approach will also allow



Namaacha WSS Intake.

for the expansion and consolidation of successful operators whilst allowing others to die off naturally – as with all new businesses, not all will succeed. Recent experience in Benin and Uganda indicates that clusters of around three systems work well – but this remains to be verified in Mozambique, where low population density and poor roads may reduce economies of scale.

d) Decentralization

The management of 130 water supply systems in a country such as Mozambique, with a large geographical extent (80,000 km²), low overall population density and difficult transport conditions can never be achieved from the center. In addition, experience with FIPAG has shown that local government has an important role to play in planning and overseeing water supply services – for which it is legally responsible, although that responsibility is delegated. In particular, operator accountability is much improved by the active involvement of local authorities.

The initial legislation setting up AIAS envisaged an entity under each provincial government to manage investment and operations, with a central AIAS as overall

planner, investment fund manager, provider of technical assistance, and setter of procedures. At a later stage, the government drew back from this and decided to establish provincial entities as delegations of AIAS, and revised legislation is now being developed to legalize this and allow for staff recruitment. This may dilute the role of the CPAS, which represents local governments and provincial line departments as an advisory body to the provincial governor. However, the wide powers of the provincial governor (a level similar to a cabinet minister) mean that in practice the AIAS delegation must nearly always follow the governor's orientation. Although the effectiveness of the CPAS cannot yet be evaluated, the overall impression is that a good balance between local, provincial and national levels has been established in the expanded delegated management framework under the AIAS mandate.

Next steps

a) Developing the private sector

Although there is clearly an appetite for water systems management within the domestic private sector, more needs to be done to develop its capacity. This is being done at present mostly by the Netherlands-funded PO-15 project which focuses on the first batch of systems with delegated management, and on a small scale by WSP. However, there will always be a need for technical assistance, training, and refresher courses in what will become a universe of over a hundred operators, with constant new entrants and turnover of existing staff. Experience in other low-income countries (for instance, in Uganda and Niger) shows that it is very difficult to have this funded by the operators themselves, so a sustainable operator and training system needs to be established. Given that there will be on-going investment for the foreseeable future, it might be possible to establish an investment fund (to avoid the administrative burden of multiple funding agencies) and reserve a fixed percentage for operator support. The provision of such technical assistance is crucial in avoiding rapid deterioration of the assets and the need for constant reinvestment.

b) Contract conditions

The standard operating lease term is currently set at five years. This reflects a cautious approach by the government, aimed at avoiding being locked into contracts with dysfunctional operators. As experience is

gained on both sides, it would be useful to review the standard term with a view to achieving best results, both in terms of attracting good operators and of mobilizing operator funds for expansion.

c) Mobilization of private capital

The government (about 30 percent), supported by development partners (about 70 percent), has been the sole source of capital investments in small towns to date. As the rehabilitation/reconstruction and delegation process becomes consolidated, the government should also consider domestic private investment to help meet the very major financial needs of this subsector by 2030. This may be anything from minor expansion (already undertaken by some operators, usually to the extent necessary to be able to sell all the water from the source works) to full investment in a new system or major expansion on a 'build, operate, transfer' basis, as is beginning to occur in countries such as Benin. Such larger investments will require financial engineering and the participation of Mozambican financial institutions. As this will take several years to build up, the sooner this is started, the better.

The viability of capital investments increases with the size of the system, and it is suggested that the focus be initially on those serving towns of over 50,000 population – there are 17 at present assigned to AIAS, and this is expected to rise to 39 by 2030 as other towns reach this size (Table 7).

With the exception of Mocimboa da Praia, Mueda, Ilha de Moçambique and Ribaúe that benefited from substantial rehabilitation recently, all other systems should be considered for 'build, operate, transfer' arrangements. A WSP (2014) calculation, using DHS (2011) data, shows that the provinces of Nampula and Zambézia where almost 48% of total population of small towns assigned to AIAS is located exhibit higher bottom 40% rates than others and are poorly served (Nampula - 5.5% and Zambézia - 10.2%). This fact could be used as priority criteria to implement the first generation of BOT arrangements.

However, all of the rural systems and about 70 percent of AIAS schemes will have less than 50,000 populations by 2030 and beyond, and are expected to continue to need government investments in infrastructure and blended investment approaches. For maximum impact, central funds should be allocated through a competitive process to the provinces, based on value for money criteria. The Provincial Councils of Water and Sanitation (CPAS) should have an overall planning, prioritization and monitoring roles in each province.

An approach which has worked well in Kenya and Uganda is the combination of output-based subsidies (OBA) and commercial finance from microfinance institutions and banks, whereby the OBA acts as a partial guarantee for the commercial finance. In this way, the systems benefit from

TABLE 7: TOWNS WITH POPULATION'S SIZES REASONABLE FOR INNOVATIVE FINANCING

Province	Population ≥ 50,000 in 2015	Population ≥ 50,000 in 2030
Niassa	-	Metarica
Cabo Delgado	Montepuez, Mocimboa da Praia, Chiúre	Montepuez, Mocimboa da Praia, Chiúre, Macomia, Mueda
Nampula	Ilha de Moçambique, Monapo, Ribaué, Malema, Nametil, Lalaua	Ilha de Moçambique, Monapo, Ribaué, Malema, Nametil, Lalaua, Namapa, Namialo, Meconta, Nacala-a-Velha
Zambézia	Mocuba, Gurué, Alto Molócue, Nicoadala	Mocuba, Gurué, Alto Molócue, Nicoadala, Milange, Morrumbala, Namacurra, Ile, Mopeia
Tete	-	Furancungo and Songo
Manica	-	Guro
Sofala	Marromeu	Marromeu, Gorongosa, Caia, Inhaminga, Nhamatanda
Inhambane	Vilankulo	Vilankulo, Inhassoro
Gaza	Chibuto	Chibuto, Macia
Maputo	Manhiça	Manhiça, Xinavane
Total	17	39

added investment and also the extra financial discipline imposed on the operator by the loan element of the finance. The exact funding architecture and targeting for such a scheme can be determined once the option is taken up by government.

d) Clustering

There are not only 130 towns assigned to AIAS, but potentially several hundred more under the rural program. There is thus clear scope for economies of scale in investment and operation, and this must be realized. Clustering is an approach often used for this purpose but which has not yet been tried in Mozambique. Now that the basic investment and contracting mechanisms are becoming well established, consideration should be given to identifying one or two clusters of systems to pilot the approach, taking into account the distance between towns, their sizes, access roads, and the availability of commercial centers where support services can be accessed.

e) Monitoring

Eighty-five percent of small town water supply systems countrywide are not functioning properly, and the 15 percent already under delegated management still need additional interventions to meet 2030 demand. Capacity therefore needs to be greatly expanded. Proper monitoring is crucial for success but is at an early stage for AIAS systems and has not even started in the rural growth centers. Operational efficiency and water quality need immediate attention as well as the timely identification of potential challenges and weaknesses as necessary to prevent avoidable failures. Monitoring capacity therefore needs to be consolidated and expanded, as new systems continue to come on stream.

Various ICT platforms for monitoring and consumer feedback are emerging in Mozambique and elsewhere. However, there is always a need to examine users' motivation for feeding these systems regularly with accurate information. If clustering becomes the norm, there would be a good identity of interest between AIAS or DAS/DNA and the operators, but for stand-alone systems the operator has little incentive to report accurately or indeed at all. This is currently being addressed, but it is not yet clear whether specific arrangements will need to be made to ensure adequate reporting.

Baseline information and inventories also need to be established for all provinces and kept up to date. Over the medium term this should become a function of the AIAS provincial delegations.

f) Decentralization

For effective management of a large number of small towns spread across 10 provinces of a large country, a decentralized approach is clearly necessary; however, it is still at an early stage of implementation, with only four AIAS provincial delegations and two CPAS established and operational to date. This presents a challenge during this transitional period, as the delegations will only become cost-effective when they each manage a significant number of systems. A compromise will have to be made between the political imperative to spread investment around as much as possible and the need to create critical mass in the decentralized entities. This might be facilitated by targeted clustered investments by development partners.

In particular, the role of the CPAS might be expanded to cover rural and large urban water supply and sanitation in addition to the systems under the AIAS mandate.

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Appendix A: Sample PPP (Lease) Contract with Private Operator (AIAS)



REPUBLIC OF MOZAMBIQUE

Ministry of Public Works, Housing and Water Resources

Water and Sanitation Infrastructure Board

**LEASE CONTRACT
FOR OPERATION, MAINTANENCE AND MANAGEMENT
OF
THE _____ WATER SUPPLY SYSTEM**

LEASE CONTRACT

Between:

Water and Sanitation Infrastructure Board, in power of the owner of infrastructure, equipment, goods and legal rights of the water supply system (WSS) of _____ town, here represented by, _____, the Executive Director, with legal powers for this act, and thereafter called “Assignor” or “Contracting Entity”,

AND

_____, Tax File Number: _____, with headquarter offices in _____, town, _____ Province, Mozambique, _____, here represented by _____, the _____, with legal powers for this act, thereafter called “Operator”,

Witnessed by:

The Government/Municipality of _____, in power of the local authority, here represented by the _____, and thereafter called the “Local Authority”,

AND,

Taking into account that:

- A. It is the Contracting Agent’s strategic objective to establish effective and efficient public water supply services;
- B. The Operator has been selected through a public tender for Operation, maintenance and Management of the WSS of _____ town;
- C. The public investment from central Government requires coordination with the competent Local Authority, in this case the Government/Municipality of _____, therefore, the main terms, conditions and procedures of this collaboration, including the financing of system infrastructure have been agreed between the signatories;
- D. The present **LEASE Contract** is signed and will be governed by the following articles and conditions subsidiary to the applicable legislation:

CHAPTER 1 - GENERAL PROVISIONS

Article 1 - Definitions and applicable concepts

For the purpose of this Contract and also its implementation, the meaning of the following expressions shall be that given here:

1. **Regulatory Agreement:** the basic agreement for public services regulation, established between CRA and the Contracting Entity where the specific Regulatory Framework for each WSS is defined;
2. **Coverage Area:** location map and inventory of infrastructure, equipment and goods (including spare parts, consumables and administrative goods) and its operational status as per Annex I;
3. **Local Authority:** Government/Municipality of _____;
4. **Client:** the singular person or collective person party to a water supply services Contract with the Operator;
5. **Residual Chlorine:** the chemical measure of the amount of chlorine which is residual in water and used as an indicator for assessment of its safeness and drinkability;
6. **Consumer or User:** singular or collective person to whom water supply services are provided;
7. **Contract:** constituted by this agreement and its annexes;
8. **Collaboration Covenant:** the agreement between CRA and the Local Authority in regard to the options for establishment of local regulation agents, their functions and their relationship with CRA, Local Authority and Operator;

9. **Operator Performance:** the Operator's technical and management efficiency, measured through Indicators, such as the volume of unaccounted for water, etc.;
10. **Management Entity or Operator:** the public or private entity responsible by law for operation, maintenance, management and supply of safe and potable water to consumers;
11. **The asset owner or assign:** the entity responsible for design, construction and operation of public services, including the implementation of delegated management to private operators;
12. **Entity Responsible for Services Provision:** the group of management entities and asset holder entities or assign;
13. **Tariff Structure:** the differentiated tariffs to be applied to different consumer categories and for different consumption blocks;
14. **Indicator:** the parameter used to measure services quality or Operator's performance;
15. **Performance Indicator:** indicator developed for the purpose of monitoring the operator's activities, focused on the main points of management impact and its results, allowing also for the development of services improvement strategies, part of Annexes I and II;
16. **Performance Targets:** are established for the services and included in Annexes I and II;
17. **Commercial and Financial Model:** reference is made to Appendix B1/2 and B2/2, part of Annex II of the Regulatory Framework, adjusted following negotiations and regularly updated as stated in the Contract;
18. **Initial Staff:** the Operator's staff structure, including CVs as presented in the proposal, together with Annex III;
19. **Proposal:** the bid presented by the Operator, which was the basis for Contract award;
20. **Regulatory Framework:** the agreement between CRA and the Contracting Entity which, in the context of Regulatory Agreement, provides standards and targets for service quality and Operator performance, the average reference tariff and the tariff structure for each specific system;
21. **Service Quality:** the consumers' perception on what is the service quality provided and which directly affects them as measured through Indicators such as the percentage of people with access to the services, quality of water supplied, and the Operator's ability to respond to consumers complaints;
22. **Asset Fee:** the amount owed by the Operator to the Contracting Entity as part of supervision fee or management fee and income resulting from utilization of assets which are part of the systems;
23. **Net fixed Asset Fee:** the amount owed by the operator to the contracting entity, under the asset management lease, which is the difference between the Operator tariff and the Consumer tariff;
24. **Intermediate or Exceptional Revision:** this is a result of a request by the Operator, Contracting Entity or CRA, when exceptional circumstances affect the normal implementation of the Regulatory Agreements or of the delegated management Contract;
25. **Periodic Revision:** the process of regular revision of Regulatory Agreements or Delegated Management Contracts, aimed at adjusting the assumptions and basic elements of the business to the real conditions on ground;
26. **Secondary System:** the water supply system or wastewater system located in an urban settlement not qualified as principal, as per applicable legislation. For the purpose of the regulatory arrangement proposed, this expression refers to the water supply system, only;
27. **Service:** the administrative, technical, and financial operation of the WSS as presented in the Proposal;
28. **Water Supply System:** the system comprising the infrastructure and equipment from intake, transport, pumping stations or boosters, treatment, storage and primary, secondary and tertiary distribution;
29. **Tariff:** the fixed price or unit price, per unit volume consumed and respective block, charged to consumers for water supply and sanitation services provided by the Operator;
30. **Operator's Tariff:** the portion of the Reference Tariff retained by the Operator, and with which it is intended to cover the costs incurred by Contract implementation;
31. **Connection Fee:** the amount which the Consumer pays to be supplied water to its premises from the distribution network;

- 32. Regulation Fee:** the fixed portion to the annual gross revenue of the Management Entity, paid by them to CRA in order to cover the costs related to regulatory activities;
- 33. Reference Figure:** the value defined for each Indicator in the Regulatory Agreement as the minimum level of the services and performance which all systems must achieve. The specific annual targets will be established for each system within the respective Regulatory Framework; and
- 34. Monitoring:** the service must be provided according to the standards of performance and standards of services quality - Monitoring Table - Annex V.

Article 2 - Object

- 2.1 Through the present Contract, the Contracting Entity leases the water supply system to the Operator for exploitation, which commits itself to integrally operate, maintain and manage the WSS and supply exclusively the supply area according to the Financial Model and Performance Targets, here agreed.
- 2.2 The Service includes the following activities:
- The commercial, technical and financial tasks; and
 - The financing of other tasks according to Table 1:

TABLE1: DESCRIPTION OF RESPONSIBILITIES OF THE CONTRACTING ENTITY AND THE OPERATOR OF THE WSS

Description	Contracting Agency	Operator
Maintenance and repairs: Infrastructure and equipment (intake, treatment facilities, transport, storages and distribution network)		✓
Rehabilitation of intake infrastructure (compressors, boreholes cleaning, filters, residual water pumps, chemical treatment equipment, etc.)	✓	
Dams and weirs cleaning	✓	
New intake infrastructure	✓	
Renewing of power sources (generators, transformers, pumps, solar power invertors, etc.)	✓	
Renovations of solar panels (up to 3 panels)		✓
Transmission mains renovations (up to 500 meters)		✓
Rehabilitation of small civil structures and public distribution points		✓
Extension of main primary network pipes (up to 500 meters)		✓
New secondary network pipes (up to 1000 meters)		✓
Tertiary network extensional		✓
Connections within the existing network		✓
Construction/rehabilitation of standpipes	✓	
Totalizing water meters	✓	
Domestic water meters		✓

- 2.3 Annex - I refers to the water supply area including the inventory, which lists the fixed and mobile assets forming the WSS, mentioned during the Contract Signing process, which should be handed back in similar quality and quantity as they were handed over to the Operator, at the time this Contract expires.
- 2.4 The formal handing over to the Operator of the assets forming the WSS shall be considered fulfilled on signature or verification of the date of entry into vigor of the Contract.

Article 3 - Duration

- 3.1 The present Contract is signed for a five (5)-year implementation period from the beginning of its implementation, which is considered to be up to five (5) days after its signature.
- 3.2 The Contract duration can be extended for a maximum period of two (2) years, provided that the parties have a written agreement ninety (90) days before the Contract expires.
- 3.3 The Contract duration can also be extended for a period proposed by the Operator, never above two (2) years, provided that the Operator notifies the Contracting Entity ninety (90) days before the beginning of the agreed extended period of:
 - a. Revisions to the Commercial and Financial Model, due to investments made and which were subject to the Contracting Entity's approval; and
 - b. Substantial changes of circumstances.

Article 4 - Periodic Revision

- 4.1 The present Contract may be subject to revision within a two (2) year period from the date of the beginning of implementation, by the Operator, taking as a fundamental basis, the Operator's tariff.
- 4.2 Each of the parties can propose revisions to the present Contract, provided that it notifies the other part, three (3) months before the indicated date.

Article 5 - Functioning of the Water Supply System

On basis of the agreed tariff between the parties, the operator is obliged to maintain the system in good working conditions; and perform all tasks of operation, maintenance and management of the WSS taking into account its nature as a public service.

Article 6 - Tariffs and Fees

The specific tariffs and fees to be applied during exploitation of the water supply system were subject to approval by CRA according to the Tables below:

TABLE 2: DRINKING WATER TARIFF

CATEGORIES		FIXED FEE (MZN/Month)	BASE TARIFF (MZN/m ³)
1	Domestic; Health Centers and Schools	50,00	18,00
2	Commerce, Services, Accommodation and Others	150,00	
3	Public Standpipe	0,00	10,00

In absence of water meters the monthly consumptions shall be billed based on average estimated volumes, as per Table 3.

TABLE 3: AVERAGE CONSUMPTION FIGURES

CATEGORIES		(m ³ /Month)
1	Domestic; Public and Commerce	20,00
2	Health Centers, Schools, Accommodation Business and Others	50,00
3	Public Standpipes	50,00

6.1. Fees and Other Costs

The fees and other costs to be applied by the Operator during the first year of the Contract implementation are as per the following Table:

TABLE 4: FEES AND OTHER COSTS (IN MZN)

Water Meter Diameter	Guarantee Deposit	Inspection Fee without Transport	Inspection Fee with Transport	Contract Subscription	Connection Cut and Reconnection Fee	Water Meter Inspection Fee	Fee for Damaged Water Meter	Fee for Infringement of the Installation	Water Meter Rental Fee/ General Services
	1	2	3	4	5	6	7	8	9
1/2"	395,04	97,32	242,76	233,04	97,32	485,76	1.214,76	1.045,20	14,16
3/4"	592,56	97,32	242,76	233,04	97,32	485,76	1.654,56	1.045,20	19,68
1"	10.793,64	136,08	291,60	485,76	1.360,44	835,68	3.665,40	3.657,84	43,92
1 1/4"	17.989,20	174,96	388,80	485,76	1.360,44	874,56	4.398,60	6.061,80	52,80
1 1/2"	28.782,72	174,96	388,80	485,76	1.360,44	932,88	7.289,04	12.018,96	87,84
2"	35.978,52	174,96	388,80	485,76	1.360,44	971,76	14.452,08	17.662,44	175,68
3"	59.964,12	174,96	388,80	582,84	1.457,40	1.029,84	21.678,00	35.325,36	263,52
4"	119.928,12	174,96	388,80	680,04	1.554,60	1.068,84	25.552,80	71.068,44	307,44
6"	239.856,24	174,96	388,80	777,36	1.651,80	1.127,04	28.903,80	141.719,04	351,48
8"	479.712,36	174,96	388,80	874,56	1.748,88	1.166,04	43.460,52	241.737,48	527,16

Due to absence of historical or estimated data there are no performance targets fixed, and the Operator should submit them within 180 days, from the date of Contract signing. No submission of the required information shall be seen as breach of the present Contract, subject to sanctions as per article 16.

CHAPTER II - RIGHTS AND RESPONSIBILITIES OF THE PARTIES

Article 8 - Rights of the Contracting Entity

In addition to those stated in the applicable legislation, the following are the rights of the Contracting Entity:

- Perform inspections of the WSS and promote technical and financial audits (in regard to operation, maintenance and management of the WSS) by independent entities to assess compliance with legal and contractual obligations; and
- Approve, after consultations with local authorities, amendments to the Commercial and Financial Model and the Performance Targets.

Article 9 - Responsibilities of the Contracting Entity

In addition to those stated in the applicable legislation, the following are the responsibilities of the Contracting Entity:

- a. Make available to the Operator, on the Contract signing date, all rights and assets associated to the water supply within the supply area, free of any burden and obligations, except those related to debts to suppliers, from which there are invoices that are still to be paid, and which were incurred before the Contracting signing date, which are of the responsibility of those who incurred such obligations, without prejudice to any right of recourse.
- b. Not to interfere and ensure no interference with services provision by the Operator; and
- c. Support the Operator in regard to its relations with the Local Authority;

9.1 Under significant changes in working conditions, the Contracting Entity commits itself to promote the restoration of the economic and financial equilibrium of the Contract under the terms provided.

Article 10 - Rights of the Operator

In addition to those stated in the applicable legislation, the following are the rights of the Operator:

- a. Provide services exclusively to the defined supply area, ensuring regular, continuous and efficient water supply to the consumers who pay their water bills regularly;
- b. Have access, use, enjoy, manage, operate and maintain, and also control the WSS and its functioning;
- c. Bill for water and collect the revenues generated;
- d. Draft annual or extraordinary proposals for revision of the Commercial and Financial Model and performance targets; and
- e. Draft proposals for extraordinary tariff revisions.

Article 11 - Obligations of the Operator

11.1 In addition to those stated in the applicable legislation, the following are the rights of the Operator:

- a. The operator must not appropriate or alienate the WSS asset;
- b. Comply with Performance Indicators and achieve performance targets;
- c. Provide services in compliance with the technical norms in use;
- d. Make available all necessary information for inspections and audits by the Contracting Entity;
- e. Utilize, during initial operation, the initial staff included in annex III;
- f. Utilize or establish registrations, books and other means for information registry with the required quality and quantity to facilitate the efficient management and supervision of this Contract, providing information to the Contracting Entity, Local Authority and the entity responsible for regulation, and also to inform the consumers on service quality and operator performance itself;
- g. Deliver on a monthly, quarterly and annual basis to the Contracting Entity, Local Authority, and the entity responsible for regulation, reports of technical, commercial, financial and other information found to be important as provided in Annex IV;
- h. Establish regular contacts with consumers and maintain them clearly informed on any changes on the services, on consumption fees, and other fees;
- i. Collaborate with the Contracting Entity during the process of handing back the WSS assets, at the end of the Contract, as per the inventory;
- j. Proceed with payments of the asset fee to the Contracting Entity according to the amounts and deadlines provided in the Contract;
- k. Proceed with payments of regulation fee to the Regulator according to the amounts and deadlines provided in the Contract.

Article 12 - Regulation Fees

- 12.1 During the initial six (6) months of the Contract implementation, the Operator will be exempted from payments of fees to the Contracting Entity, until the applied tariff is applied is revised;
- 12.2 The asset fee and the regulation fee to be established six (6) months later will be paid on a monthly basis between 1 and 5 of the following month.
- 12.3 To the entity responsible for regulation, the Operator will pay a fee equivalent to 2% of the gross revenue, corresponding to the Regulation fee, within the above mentioned time-line, according to the Decree 23/2011 dated June 8.

Article 13 - Performance Guarantee

- 13.1 At Contract signing stage, the Operator will provide to the Contracting Entity the Performance Guarantee, on first demand, issued by a national financial institution, with the required reputation, according to the format in annex V.
- 13.2 The Performance Guarantee:
 - a. Is aimed at ensuring compliance with performance targets;
 - b. Can be used by the Contracting Entity to cover any costs, losses, damages or costs incurred as a result of non-compliance, fraudulent or not, of this Contract by the Operator;
 - c. Can be used by the Contracting Entity in case of non-compliance with mobile asset fees payments;
 - d. Can be used by the Contracting Entity in good faith to ensure good conditions, except the reasonable use and wear of assets that form the system before their handing back.
- 13.3 The parties recognize that the right of the Contracting Entity of enforcing the Bank Guarantee is not above nor dispenses the right to terminate the Contract.

CHAPTER III - RELATIONSHIPS WITH OTHER ENTITIES

Article 14 - With the Local Authority

- 14.1 The Local Authority is the privileged channel for the Operator in its relationship with the Contracting Entity, and should be copied all communications related to Contract implementation;
- 14.2 It is the Local Authority's Right to:
 - a. Follow up the supervision and implementation of the Contract;
 - b. Provide feedback on proposals for the revision of Operator performance targets;
 - c. Provide feedback to revisions of the Operators Commercial and Financial Model.
- 14.3 In case of service suspension the Local Authority may make itself guardian of the assets making up the system, and also on Contract termination, take over temporary operation of the system to ensure continuity of service provision to consumers. The Local Authority will be held accountable by the Contracting Entity for any damage incurred during such period.
- 14.4 Deliver to the Contracting Entity any information found relevant related to Contract implementation.

Article 15 - With the Entity Responsible for Regulation

15.1 Both parties in this Contract have a duty of collaborating with the entity responsible for regulation in support of the good and correct performance of its legal tasks and defined by the Contract for implementation of the Contract.

The entity responsible for regulation shall:

- a. Ensure compliance with consumer rights, supporting the resolution of conflicts which it has not been possible to settle at Operator level;
- b. Seek to balance the interests of the parties involved and facilitate the flow of information between the Operator, the Consumers and the Local Authority; and
- c. Follow up on the compliance of the performance targets by the Operator.

Article 16 - Contract Termination

16.1 The Contract expires on the initial implementation completion date or on its agreed extended implementation date, and can be terminated through mutual agreement, just cause, unforeseen circumstances or change of circumstances.

16.2 The intention for Contract termination shall be made and supported by written evidence, and is enforceable 45 days after its receipt by the other part, if during that period the parties fail to agree in any form.

Article 17 - Just Cause

17.1 Takes place when one of the parties commits a material offence, serious and repeated or singular, to the provisions of the presented Contract, and fails to remedy or submit an acceptable proposal to the other part in order to remedy the non-compliance situation in a period of 15 calendar days, or other agreed period, after the reception of the non-compliance notification and intention to terminate.

17.2 The intention to terminate the Contract will come into force after it has been received by the other part 45 calendar days later, if during that period the parties fail to reach any agreement.

17.3 The injured party shall be compensated in amount estimated by the damage and losses incurred due to non-compliance of the other part, including debts to third parties borrowed in good faith, and which legally are to be serviced.

Article 18 - Unforeseen Circumstances

18.1 Unforeseen circumstances are those arising from any extraordinary but inevitable situation, not provided for, with effects independent of the will or personal circumstances of the parties and resulting in non-compliance with the Contract.

18.2 Under unforeseen circumstance, and when this clause prevails, the obligations of the parties related to this Contract are suspended.

18.3 In case of unforeseen circumstances, the affected part shall, in written communication, notify immediately the Contracting Entity and the Local Authority of the fact occurred, proposing alternative solutions for the return to compliance status, minimize or prevent the occurrence of unforeseen circumstances, or, informing of the impossibility of doing this and the consequent intention of terminating the Contract.

18.4 None of the parts shall have the right to compensation.

Article 19 - Change of Circumstances

- 19.1 If there are changes in any contractual conditions resulting in an adverse impact on the economic value of the LEASE and in respect of the rights and obligations of the parties which results in higher costs than benefits to the Operator, the Operator shall have the right to propose the restoration of economic and financial equilibrium through revision of the Commercial and Financial Model, the performance targets if appropriate, or an extraordinary tariff revision.
- 19.2 If there are changes in any contractual conditions, the Operator shall in written communication, immediately notify the Contracting Entity and the Local Authority the fact, proposing alternative solutions and probable revisions.
- 19.3 The Contract is considered terminated if the parties, in consultation with the Local Authorities, fail to reach an agreement in 90 calendar days, without the prejudice to the payment of overdue obligations not paid.
- 19.4 On terminating the Contract for the reasons provided in this article, the Operator shall have the right to compensation in the amount of investment made through credit resources from partners and third parties which are still unpaid at the termination date.
- 19.5 In order to clarify, any case of investments not covered by the Operator's own obligations, which has not been able to be solved by mutual agreement through changes in Commercial and Financial Model, are liable to be considered as changes to the Contractual circumstances for the purposes here provided.

Article 20 - The Call for Guardian of Assets

If an event capable of putting at risk public health, the security of the WSS or the security of consumers occurs, or, for any reason, the interruption of operation of the services is about to occur, and following the recommendation of the Local Authority, the Contracting Entity can exercise its discretionary powers of calling for itself the guardian of the assets in order to suspend the LEASE in the following terms:

- 20.1 The call for guardian of assets is notified with a minimum of 5 calendar days and shall not take more than 90 calendar days. During such period the Contracting Entity or the Local Authority, as per agreed shall assume the rights and responsibilities of the Operator, which will be automatically suspended and will be held accountable to the Operator for any fraud or damage occurring during such period;
- 20.2 Once the reasons for calling for guardian of assets are overcome and when the Contracting Entity finds it adequate, the Operator will be notified to reassume, on a date fixed by the Contracting Entity, the normal provision of water services; and
- 20.3 If the Operator is not willing to reassume or if the situation on the ground demands, the LEASE Contract will be subject to termination and the Operator will be compensated for losses and damages effectively suffered.

Article 21 - General Consequences of Contract Termination

- 21.1 On notification of the intention for Contract termination, the Contracting Entity will inform the Operator of the establishment of a transition commission responsible for compliance with the rights and responsibilities provided in this chapter and also for ensuring a sustainable handing back of assets of the WSS and services.
- 21.2 With the extinction of the present Contract, all rights and responsibilities of the parties shall also expire, except when there are overdue rights and obligations, and without prejudice of acquired rights.
- 21.3 If there is no material support for just cause, unforeseen circumstances, or change of circumstances, the part that sought for Contract termination shall pay in addition to compensation provided for this case an addition of equivalent to an average of net profits of 3 subsequent months.

- 21.4 At Contract termination, if for any reason the Operator notifies that it intends to sell, the Contracting Entity has the right of option to buy equipment and mobile assets, for administrative, technical and management tasks of the WSS, for its depreciated accounting value. This right shall be informed to the Operator and must be fulfilled before Contract extinction.

Article 22 - Conflict Resolution

- 22.1 The parties shall initially seek to resolve any conflict in an amicable way and then through the mediation of the entity responsible for regulation.
- a. If they fail to resolve the parties shall agree that the dispute on interpretation or implementation of the present Contract will be submitted to arbitration. The substantive procedural law applicable is Mozambican law, and the place of arbitration is Maputo city.

Article 23 - CRA

The parties shall recognize that responsibilities of CRA in this Contract include:

- a. Assessment and approval of the water tariff for consumers proposed by the Contracting entity;
- b. Compliance with CRA's rights and responsibilities in regard to periodic revisions;
- c. Drafting of recommendations in regard to service quality and investment program;
- d. Mediation, in case it is necessary;
- e. Coordination of the revision process at all levels of tariff to the consumers and the respective components, including raw water, Operator's tariff and water meter rental fee; and
- f. Consultation of water user groups and Municipalities to assess service quality and investment programs for network expansion.

The parties recognize:

- a. Their respective responsibilities to provide CRA with relevant information, in order to allow for the fulfillment of its mandate;
- b. The right of CRA, within the limits of the applicable law, to perform inspections and audits related to services to the clients.

CHAPTER IV - FINAL PROVISIONS

Article 24 - Applicable Legislation

- 24.1 The present Contract, its meaning and interpretation and the relationship between parties is governed by applicable Mozambican legislation.
- 24.2 In regard to provisions under the applicable legislation, in the present Contract, the Law No. 6/2004, dated on June 17, the parties commit to not offering direct or indirectly any benefits to a third party, and not demanding, promising or accepting, for its own or another's benefit, any offer which is aimed at obtaining a favorable outcome related to a service decision.

Article 25 - Anti - Corruption

As provided in the applicable legislation, in the present Contract, the Law No. 6/2004, dated on June 17, the parties commit that during Contract implementation, they shall not offer, directly or indirectly, benefits to third parties, and not demand, promise or accept, for own benefit or for others, offers aimed at obtaining a favorable outcome related to the services to be provided.

Article 26 - Modifications

All changes to the Contract and its annexes will form part of an addendum signed by the parties.

Article 27 - Confidentiality

The Operator shall not during the implementation of this Contract or within 2 years after its implementation, make public any confidential information related to the services, to the present Contract or to the activities or operations of the Contracting Entity, without previous written authorization.

Article 28 - Contract Implementation and Correspondence

Any correspondence shall be written and sent to the addresses below:

CONTRACTING ENTITY

Physical Address:

OPERATOR

Physical Address:

LOCAL AUTHORITY

Physical Address:

The present Contract is signed in three copies, on of of 2015 and is signed by:

CONTRACTING ENTITY

Administração de Infra-estruturas
de Água e Saneamento
The Representative
Executive Director

.....

(.....)

OPERATOR

The Representative

.....

.....

(.....)

WITNESSED BY THE LOCAL AUTHORITY

Government/Municipality

The Representative:

.....

(.....)

Appendix B: Piped Systems under Delegated Management (AIAS)



- ★ Piloted in 2006
- ★ Piloted in 2006 and then procured under revised contracting
- ★ Procured under revised contracting documents
- Rural growth center systems

Appendix C: Operator Profiles

Water supply provision has not been a traditional business area for the private sector until recently. This explains why most of the companies operating small water supply systems under the delegated management framework have limited sector experience and diverse backgrounds. Typically, they can be grouped along three main origins: local commercial enterprises, ex-public sector employees with water sector experience, and long-standing water related equipment commercial firms. Ten water operators operate 14 systems. A brief narrative description is included for three firms (one representing each group) with a table of firms with similar origins.

MASSINGA COMÉRCIO, INVESTIMENTOS E SERVIÇOS

Massinga Comércio, Investimentos e Serviços was legally established in Maputo, but has been operating in Massinga (Inhambane province) for a while as a wholesale import and export company. It has no previous experience in water supply and sanitation as it has been operating in the hospitality sector, warehousing, and the distribution of food and alcoholic beverages.

Description	Operator Profile
Year of registration	Not provided
Place of registration	Maputo City
Capital	US\$28,500.00 (approximately)
Type of organization	Sole proprietorship
Systems operated	Massinga
Initial operation year	2015

In 2015 it was awarded the contract to manage the local water supply system (Massinga). The company might have been interested in water supply business as a result of belonging to the local business community, and having suffered when the local system collapsed due to the departure of the operator contracted under the pilot in 2006.

When the operator started operating the system in August 2015, there were 647 active domestic connections and 11 standpipes. There are no data on progress yet as it has not started reporting to AIAS, but clearly it is one of the companies that will require significant attention in terms of capacity building, particularly on the technical side.

Other similar firms are listed below:

Description	Operator - V Profile	Operator - VI Profile
Commercial name	Ecops & Consultores, lda	Ecogep Hidraulica
Year of registration	Not provided	2013
Place of registration	Tete	Nampula
Capital	US\$550.00 (approximately)	US\$1,450.00 (approximately)
Type of organization	Limited liability company	Limited liability company
Business area	Wholesale trade, import and export, and civil construction	Retail trade and consultancy in civil and water supply construction
Previous experience	Trade, tourism, livestock, and agriculture	None
Systems operated	Alto Molocue	Malema
Initial operation year	2015	2015

Kutenda Consultores

Kutenda Consultores was legally established in 2006 in the city of Pemba (the capital of the northern province of Cabo Delgado) as a consultancy in civil construction, rural development, natural resources, environment, and social development. Its prior experience was mostly related to the supervision of works such as the

rehabilitation and construction of small piped systems, boreholes, and latrines. It was founded by a former local public servant with substantial experience in rural water supply and sanitation services.

Description	Operator Profile
Year of registration	2006
Place of registration	Pemba
Capital	Not provided
Type of organization	Sole proprietorship
Systems operated	Chai, Ancuabe, and Mocimboa da Praia
Initial operation year	2013

Kutenda Consultores started operating water supply systems in 2013 when the company was awarded two small water supply schemes (Ancuabe and Chai), both located in the same province, Cabo Delgado. Although one of them is under AIAS jurisdiction, both contracts were signed with the provincial government because AIAS had not started to implement the expanded delegated management framework effectively, and the system had been rehabilitated by the local government. There has not been much increase in the number of connections in those towns (105 domestic connections in Ancuabe and 23 in Chai) owing to their low population density. Potential consumers located on the outskirts of the towns receive alternative services such as standpipes and handpumps. Conventional wisdom is that this size of business is generally unprofitable, and therefore not attractive to the private sector, but the company still remains in operation.

In 2014 Kutenda Consultores bid successfully for the much larger Mocimboa da Praia water supply system in the same province, which had benefited from extensive rehabilitation financed by the World Bank. In January 2015, it started with 1,899 connections (of which 1,733 are domestic) and 95 standpipes; by October 2015, the number of household connections had increased to 2,037.

Other similar firms are listed below:

Description	Operator Profile	Operator Profile
Commercial name	Associação Flor Projecto	PB Construções
Year of registration	2014	2013
Place of registration	Chokwe	Matola
Capital	US\$10,000 (approximately)	US\$14,250 (approximately)
Type of organization	Limited liability company	Limited liability company
Business area	Civil construction and consultancy	Civil construction and consultancy
Previous experience	None	None
Systems operated	Mabalane	Nametil
Initial operation year	2015	2015

Collins Sistemas de Água (CSA)

Collins Sistemas de Água Lda (CSA) was legally established in 2009 as a consultancy in water treatment systems, water supply, sanitation, and environment. Collins is a branch of a much larger Mozambican consultancy firm, and is mainly specialized in the supply of small-to medium-sized water treatment plant equipment. Its headquarters are in the capital, Maputo, from where it coordinates its operations.

Description	Operator Profile
Year of registration	2009
Place of registration	Maputo City
Capital	US\$ 2,850.00 (approximately)
Type of organization	Limited liability company
Systems operated	Moamba, Mopeia, Ulongue
Initial operation year	2014

CSA's first venture into water supply management was in Moamba, a district capital, immediately after the system was rehabilitated in 2013. At that time there were six

commercial connections, no domestic connections, and 19 standpipes. Two years later there were 2,024 domestic and 49 commercial connections, and five standpipes, providing about 75 percent coverage. According to CSA, the main factors driving this rapid growth were the good condition of the network, its campaign promoting the advantages of domestic connections, and the option of paying connection fees by installments, backed by CSA's own investments in network expansion. The company plans to reach 100 percent coverage in Moamba by 2018.

In 2015 the company was awarded two more water supply contracts in central Mozambique (Ulongue in Tete province and Mopeia in Zambezia province). The company started operating Ulongue in May 2015 with 237 connections (of which 200 were domestic) already established during the construction phase, and by October 2015 the number of connections had increased to 544, of which 459 are domestic. In Mopeia there were 203 connections at the starting date (August 2015),

with 37 more connections established to date. The operator has adopted a central ICT system for managing the three systems, allowing many management tasks to be undertaken at its headquarters in Maputo, including invoice processing, financial management, human resources management, and reporting to the regulator and AIAS. This provides economies of scale, cross-learning, and an integrated management approach.

Current challenges include physical losses (49 percent), a less than ideal collection: billing ratio (82 percent), high input costs (principally energy and chemical products), scarcity of equipment and spare parts on the local market, and a lack of qualified staff. However, AIAS is providing a certain amount of technical support, training, and some basic equipment under its operator capacity-building program.

Other similar firms are listed below:

Description	Operator Profile	Operator Profile	Operator Profile
Commercial name	Enge Pesquisa	Técnica de Consultoria e Construção Civil	Mega -Construções e Serviços
Year of registration	2011	2012	2011
Place of registration	Maputo	Nampula	Montepuez
Capital	Not provided	US\$ 1,450	Not provided
Type of organization	Limited liability company	Sole proprietorship	Sole proprietorship
Business area	Consultancy in civil engineering, studies, projects, and supervision of works	Consultancy and supervision of civil construction and water supplies including boreholes	Consultancy in civil engineering, studies, projects, and supervision of works
Previous experience	Management of rural small piped systems	None	Supervision of works: rural small piped systems, boreholes, and latrines
Systems operated	Nhamatanda	Ribaue	Montepuez
Initial operation year	2013	2014	2015

Appendix D: Sample Operator Performance Reports

Quarter Report Ref. CRA/1 – Services Quality Indicators and Performance

REPORT TO THE REGULATOR, COPIED TO THE CONTRACTING AGENCY
(This report shall be presented within the first 15 days of the following quarter)

Operator: **COLLINS SISTEMAS DE ÁGUA, LDA**

City/Town: **MOAMBA**

Year: **2015**

Performance Indicator Data		Contractual Targets	Quarter-I	Q-II	Q-III	Q-IV	Data Source and Computation
A. SERVICE QUALITY							
A.1	Coverage						
1.i	Total pop. in the system area (PT)		16,410				Source: INE
1.ii	Total no. of connections (TL)		1,636				Active connections, average
1.iii	No. of active domestic connections (LD)		1,588				Active connections, average
1.iv	No. of active standpipes (FO)		5				Active standpipes, average
1.v	Pop. served by domestic connections (PLD)		12,227				LD * 5,3
1.vi	Pop. served by standpipes (PFT)		1500				FO * 300
1.vii	Coverage by domestic connections (%)		65.4%				(PD/PT)*100%
1.viii	Coverage by standpipes (%)		9.1%				(PF/PT)*100%
1.ix	Total coverage (%)	$V \geq \% - 50\%$	75.0%				$((PD + PF) / PT) * 100\%$
A. 2	Treated Water Quality						
2.i	No. of residual chlorine tests (NC)	x/day - 60x/trim	68				Provided by the operator
2.ii	No. of residual chlorine tests with positive results (CC)		52				
2.iii	% of positive tests	$V = 100\%$	76.4%				$(CC/NC) * 100\%$
A. 3	Consumer Satisfaction						
3.i	No. of complaints received		239				Provided by the operator
3.ii	No. of responded complaints (%)	$V \geq \%$	100%				Provided by the operator

3.iii	Average complaints response time (days)	$V \leq \text{days}$	4				Provided by the operator
3.iv	Percentage of metered billings (%)	$V \geq \%$	95%				Provided by the operator
B. OPERATOR PERFORMANCE							
i	Produced volume (m ³) (VP)		86,620				Provided by the operator
ii	Average distribution time (hr/day)	$V \geq 10 \text{ hr/day}$	12				Provided by the operator
iii	Average distribution frequency (days/week)	$V \geq 7 \text{ days/week}$	7				Provided by the operator
iv	Billed volume (10 ³ m ³) (VF)		42,080				Provided by the operator
v	Unaccounted for water	$V \leq \% - \text{ND}$	51%				$((VP - VF) / VP) * 100\%$
vi	Billed amount, including VAT (10 ³ MZM) (MF)		1,190				Provided by the operator
vii	Collected amount (10 ³ MZM) (MC)		975				Provided by the operator
viii	Total collection rate (%)	$V \geq 80\%$	82%				$(MF / MC) * 100\%$
ix	Operational costs (10 ³ MZM) (CO)		1,766				Provided by the operator
x	Operational costs coverage rate	$V > 1.0$	0.57				$(MF - \text{VAT}) / CO$
xi	Total full time staff (NT)		25				Provided by the operator
xii	Staff number per 1,000 connections	$V \leq 40$	15				$(NT/TL) * 1000\%$

Quarter Report Ref. CRA/1 – Services Quality Indicators and Performance

REPORT TO THE REGULATOR, COPIED TO THE CONTRACTING AGENCY

(This report shall be presented within the first 15 days of the following quarter)

City/Town: **MOCÍMBOA DA PRAIA**

Operator: **KUTENDA CONSULTORES**

Year: **2015**

Performance Indicator Data		Contractual Targets	Quarter-I	Q-II	Q-III	Q-IV	Data Source and Computation
A. SERVICES QUALITY							
A.1	Coverage						
1.i	Total pop. in the system area (PT)		53,350				Source: INE
1.ii	Total no. of connections (TL)		1,892				Active connections, average
1.iii	No. of active domestic connections (LD)		1,810				Active connections, average
1.iv	No. of active standpipes (FO)		98				Active standpipes, average
1.v	Pop. served by domestic connections (PLD)		9,593				LD * 5,3
1.vi	Pop. served by standpipes (PFT)		29,400				FO * 300
1.vii	Coverage by domestic connections (%)		18%				(PD/PT)*100%
1.viii	Coverage by standpipes (%)		55%				(PF/PT)*100%
1.ix	Total coverage (%)	$V \geq \% - ND$	73%				$((PD + PF) / PT) * 100\%$
A. 2	Treated Water Quality						
2.i	No. of residual chlorine tests (NC)	x/day - 90x/trim -	0				Provided by the operator
2.ii	No. of residual chlorine tests with positive results (CC)		0				
2.iii	% of positive tests	$V = 100\%$	0%				$(CC/NC) * 100\%$
A. 3	Consumer Satisfaction						
3.i	No. of complaints received		34				Provided by the operator
3.ii	No. of responded complaints (%)	$V \geq 100\%$	80%				Provided by the operator
3.iii	Average complaints response time (days)	$V \leq 5 \text{ days}$	1				Provided by the operator
3.iv	Percentage of metered billings (%)	$V \geq \% - ND$	95.6%				Provided by the operator
B. OPERATOR PERFORMANCE							
i	Produced volume (m ³) (VP)		268,272				Provided by the operator
ii	Average distribution time (hr/day)	$V \geq 8 \text{ hr/day}$	12				Provided by the operator

iii	Average distribution frequency (days/ week)	$V \geq \text{days/ week}$	7				Provided by the operator
iv	Billed volume (m ³) (VF)		81,874				Provided by the operator
v	Unaccounted for water	$V \leq \% - \text{ND}$	69%				$((VP - VF) / VP) * 100\%$
vi	Billed amount, including VAT (10 ³ MZM) (MF)		2,087				Provided by the operator
vii	Collected amount (10 ³ MZM) (MC)		946				Provided by the operator
viii	Total collection rate (%)	$V \geq \% - \text{ND}$	45%				$(MF / MC) * 100\%$
ix	Operational costs (10 ³ MZM) (CO)		1,555				Provided by the operator
x	Operational costs coverage rate	$V > - \text{ND}$	1.13				$(MF - \text{VAT}) / CO$
xi	Total full time staff (NT)		24				Provided by the operator
xii	Staff number per 1,000 connections	$V \leq 40$	13				$(NT / TL) * 1000\%$

Quarter Report Ref. CRA/1 – Services Quality Indicators and Performance

REPORT TO THE REGULATOR, COPIED TO THE CONTRACTING AGENCY

(This report shall be presented within the first 15 days of the following quarter)

City/Town: **ILHA DE MOÇAMBIQUE** Operator: **FIPAG**

Year: **2015**

Performance Indicator Data		Contractual Targets	Quarter-I	Q-II	Q-III	Q-IV	Data Source and Computation
A. SERVICES QUALITY							
A.1	Coverage						
1.i	Total pop. in the system area (PT)		55,197				Source: INE
1.ii	Total no. of connections (TL)		1,343				Active connections, average
1.iii	No. of active domestic connections (LD)		1,213				Active connections, average
1.iv	No. of active standpipes (FO)		49				Active standpipes, average
1.v	Pop. served by domestic connections (PLD)		6,429				LD * 5,3
1.vi	Pop. served by standpipes (PFT)		14,700				FO * 300
1.vii	Coverage by domestic connections (%)		11.6%				(PD/PT)*100%
1.viii	Coverage by standpipes (%)		26.6%				(PF/PT)*100%
1.ix	Total coverage (%)	V ≥ 26%	38%				((PD + PF) / PT) *100%
A. 2	Treated Water Quality						
2.i	No. of residual chlorine tests (NC)	10/day - 90x/ trim	292				Provided by the operator
2.ii	No. of residual chlorine tests with positive results (CC)		266				
2.iii	% of positive tests	V = 100%	91%				(CC/NC) *100%
A. 3	Consumer Satisfaction						
3.i	No. of complaints received		98				Provided by the operator
3.ii	No. of responded complaints (%)	V = 100%	100%				Provided by the operator
3.iii	Average complaints response time (days)	V ≤ 5 days	5				Provided by the operator
3.iv	Percentage of metered billings (%)	V ≥ 80%	97%				Provided by the operator

B. OPERATOR'S PERFORMANCE						
i	Produced volume (m ³) (VP)		101,041			Provided by the operator
ii	Average distribution time (hr/day)	$V \geq 12$ hr/days	14			Provided by the operator
iii	Average distribution frequency (days/week)	$V = 7$ days/week	7			Provided by the operator
iv	Billed volume (m ³) (VF)		88,685			Provided by the operator
v	Unaccounted for water	$V \leq 45\%$	12%			$((VP - VF) / VP) * 100\%$
vi	Billed amount, including VAT (10 ³ MZM) (MF)		1,997			Provided by the operator
vii	Collected amount (10 ³ MZM) (MC)		1,117			Provided by the operator
viii	Total collection rate (%)	$V \geq \% \text{ nd}$	56%			$(MF / MC) * 100\%$
ix	Operational costs (10 ³ MZM) (CO)		1,393			Provided by the operator
x	Operational costs coverage rate	$V > 0.8$	1.08			$(MF - VAT) / CO$
xi	Total full time staff (NT)		20			Provided by the operator
xii	Staff number per 1,000 connections	$V \leq 15$	15			$(NT / TL) * 1000\%$

May 2016

Water and Sanitation Program

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