COLLECTIVE ACTION FOR WATER LOSS REDUCTION

# Testing the Public Private Partnership Approach

A COMMON

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# LIMITED WATER, LIMITED CAPACITY, GROWING DEMAND

The uneven distribution of water resources in southern Africa, coupled with rapid urbanisation, increasing and competing demands for water, and the impacts of climate change, present a complex environment in which water demand across the region is projected to significantly exceed supply in the future. Access to reliable water supply for urban areas poses a particular challenge. Droughts, variable and unpredictable rainfall and unseasonable changes in weather pose major obstacles to water resource security. At the same time, managing wastewater from inefficient and ineffective municipal water treatment systems and industrial and mining operations remains a major challenge.

Managing these challenges is compounded by the technical, financial and human resource constraints faced by many municipalities and urban water suppliers, resulting in widespread sub-standard service delivery. With over 30% of SADC's urban population living in poverty and with inadequate access to water, there is a clear socio-political imperative for suppliers to improve and extend supply.

In the SADC context the efficient use of water has significant environmental and social dimensions at the transboundary level as well. In the face of water scarcity, or during periods of drought the management and use of limited, shared water resources becomes a major challenge – both nationally and between riparian states. The range of competing demands include potable water supply to urban centres, industrial use, irrigation, hydropower generation and water use for cooling of coal fired power generation. More efficient use of water in municipal systems means less water is required to meet demand levels - resulting in reduced abstraction rates. This translates into real benefits for river ecosystems, especially during low flow periods (an increasingly prevalent occurrence in the region) when water quality, aquatic ecology, biodiversity and ecological water needs are often compromised due to insufficient water in a system. It also translates into greater flows for downstream countries.

#### Definitions

**Water Loss Reduction:** A process of implementing measures to increase system efficiencies and reduce system losses.

Water Demand Management: Adoption and implementation of policies, investments and initiatives by a water utility, to influence and improve efficiency of water use by all.

**Non-Revenue Water:** Water that is pumped or produced but 'lost' prior to reaching the customer. Losses can be real (physical losses, leaks) or apparent (theft or metering inaccuracies).

# Collective Action for Water Loss Reduction

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Water conservation has long been recognised as an important tool in using scarce water resources more efficiently. Water Demand Management (WDM), Water Loss Reduction (WLR) and Non-Revenue Water (NRW) interventions are widely recognised as cost-effective measures that support the delivery of sustainable water supply. The financial benefits of reducing water loss and nonrevenue water are clear: reducing losses (both commercial and physical) increases a utility's revenues and lowers their operating costs.

Non-revenue water is inherently linked to weak service delivery and high rates of supply interruptions. Unfortunately, utilities tend to pay more attention to repairing water networks in areas where there are higher revenue streams, meaning those living in informal settlements or poorer areas are disproportionately affected by leakages and interruptions. Addressing NRW issues through improved institutional capacity results in increased cash flow for reinvestment, allowing for consistent and improved services for all. In 2016, the SADC Regional Strategic Action Plan IV (RSAP IV) identified WLR measures as key to achieving the region's transformational agenda of inclusive, sustainable growth: "Activities include ... promoting water demand management practices and lessons learned, including alternative funding mechanisms in order to increase access to Water Supply and Sanitation especially to poor communities."

Water Loss Management is an adaptation strategy in SADC which assists in responding to projected climate change impacts such as increased variability of rainfall. However, while WLR, WDM and NRW initiatives are considered important water management activities and no-regret climate risk adaptation strategies that present clear tangible economic, environmental and social benefits, translating these strategies into practice remains a major challenge for many SADC water institutions where human and financial resources are already stretched.

# **Non-Revenue Water Statistics**

The World Bank estimates that 45million m3 of water is lost daily through system leaks, and a further 30million m<sup>3</sup> goes unaccounted for due to theft, metering errors and institutional corruption. This translates to \$141 billion of revenue lost per annum (2012), of which a third is attributed to developing countries. NRW losses in SADC countries is on average approximately 47% - higher than the global average of 35%.

# ADDRESSING THE CHALLENGE: THE PPP APPROACH

In response to these challenges and under the auspices of SADC's TWM Programme funded by the German and British Governments, GIZ initiated a series of WLR pilot projects spanning 2011 – 2017, which drew together partners from the public and private sector in South Africa, Botswana and Namibia. As pilots, the primary aim was to test and refine a model of using Public-Private Partnerships (PPPs) to pool resources and tackle WLR, with the longer-term objective of garnering wider interest and investment for replication and scaling-up.

The idea behind this approach was that significant water and financial savings could be achieved through a modest capital outlay that funded a series of technical, training and awareness raising interventions. Importantly, the pilots also provided a platform to showcase how WLR efforts can result in tangible benefits to local communities – through localised job creation, improved assurance of supply, effective mechanisms for communicating major leaks and blockages to relevant institutions, and empowerment (through training) of community members to fix household leaks.

# THE BOLOKA METSI PROJECT, EMFULENI, SOUTH AFRICA



Emfuleni Local Municipality (ELM) is located in the Vaal catchment area, within the transboundary Orange Senqu River Basin. Studies indicate that this freshwater resource is already over-allocated; it is the source of water supply to approximately 60% of South Africa's economy, in addition to being a significant source of livelihoods and economic activity in Lesotho, Botswana and Namibia. Given the southern part of SADC is predicted to experience longer and more severe droughts in coming years, urgent measures need to be taken to manage the resource more responsibly and effectively.





As a means of curbing excessive water losses, South Africa's Department of Water and Sanitation set an ambitious target in 2012 for all municipalities to reduce water losses by 15%. With non-revenue water levels sitting as high as 50%, majority of users being unaware and disengaged from water conservation issues, and financial and human resources already stretched, the ELM faced a significant challenge in reaching this goal.



{Educational Awareness on the Orange-Senqu}

# HEADLINE STATISTICS



The solution lay in establishing a Public Private Partnership between Sasol (a South African-based oil and gas company) and ELM to provide seed funding for a series of technical, training and awareness raising initiatives in a pilot area within the municipality. Sasol hoped, through the project, to reduce their own water risk by investing in water-loss reduction in an 'upstream' municipality which derives water from the same sources as Sasol. At the same time, their contribution would reduce municipal water costs and improve residents' water security. The pilot was supported by the Orange Senqu River Basin Commission (ORASECOM), which was interested in promoting new approaches to effectively address transboundary water management challenges.

The long-term objective of the PPP was to ring-fence and reinvest the savings arising from the reduction in water use into continued WDM efforts beyond the pilot. To ensure this sustainability, the contracted implementing agent, a group of consulting engineers, worked closely with the municipality and residents to embed technical processes into the institution and to empower local communities to proactively tackle water losses and system inefficiencies.



The project achieved a payback period of less than one year and created a number of local jobs through the appointment of Water Marshals and plumbers. However, due to a range of complex institutional challenges – including high staff turnover resulting in the loss of institutional memory, project duration, incompatible systems and technical challenges – Emfuleni's Department of Water and Sanitation could not maintain the necessary momentum after the end of the project. These issues, and opportunities to overcome them, are interrogated in more detail in the following section.

The pilot did however demonstrate that a PPP model is suitable for the water sector context, and can drive water conservation, improved service delivery and create a mindset shift amongst users. But, this is dependent on strong public sector leadership and commitment, community buy-in, and continued prioritisation of WDM at a municipal and consumer level.

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# SOMARELA THOTHI, GABORONE, BOTSWANA



In 2015, the Greater Gaborone Area in Botswana experienced its worst drought in 32 years. The Gaborone Dam was almost empty, and water rationing had become a daily occurrence. Most of the water for the southern part of Botswana was pumped from several hundred kilometres away and was the life-line for the majority of the people.

The Somarela Thothi (Setswana for "Save every drop") Project was initiated in response to this crisis, based on the Emfuleni model of implementing water loss reduction measures through a PPP.



A partnership was established between the Water Utilities Corporation (WUC), the FNBB (First National Bank-Botswana) Foundation and GIZ, with support from SADC and the Limpopo Watercourse Commission (LIMCOM).

Through a Memorandum of Understanding (MoU), each of the three key partners committed to fund and manage a component of the pilot: bulk metering and sectorisation, public awareness and pressure management respectively. Following a public tender procurement process, a firm of consulting engineers was appointed to assist the utility. All implementation was undertaken by WUC staff to ensure they were adequately capacitated at the end of the pilot.

# SOMARELA THOTHI HEADLINE STATISTICS Duration: 12 months Seed Funding: € 220,000 (GIZ); € 70,000 (FNBB) Water Savings: 1,000,000 m³ Financial Savings: € 500,000

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# NOTABLE RESULTS

Community members targeted through awareness activities (direct and indirect)

Water conservation officers appointed and upskilled

Schools visited

Launch Brochure

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Without seed funding from the private sector, we could never have achieved the same quality and scale of results within such a short timeframe... The pilot helped fundamentally change the way WUC views NRW initiatives and how they can generate self-financing Moeti Matswiri,

WUC Leakage Control Engineer and Head of Somarela Thothi Project

The longer-term objective of the pilot was to monitor water savings and ring-fence the related financial savings to enable WUC to scale-up and replicate the concept. Based on the success of the pilot, a \$145.5m World Bank loan was secured to expand the model nationwide. WUC is now in the process of conducting a countrywide scan of the potential to roll-out the WLR measures in other regions. Based on the outcomes of this scan, WUC will look to attract suitable private partners using the WUC-GIZ-FNBB Model.



# NATIONAL WATER SAVINGS CAMPAIGN, WINDHOEK, NAMIBIA



The sustained drought in Namibia (spanning 2014 - 2016) resulted in a severe national water crisis, with projections that Windhoek's water supply could run dry as early as November 2016. To avoid a state of emergency and ensure availability of supply until the next rainy season, the President of Namibia announced the 2016 National Water Saving Campaign: Windhoek and CAN (Central Areas of Namibia) residents were urged to save up to 40% of their water consumption through targeted efforts relating to management and use.

Our citizens don't realise the predicament that Namibia, and in fact the whole world, is facing with regard to population growth and depleting water resources. We need to create continued awareness of these pressures and drive forward the message of water savings at all levels.

Ndina Nashipili, MAWF Campaign co-ordinator



Led by the Ministry of Agriculture, Water and Forestry (MAWF), the Campaign drew together partners from public sector institutions, civil society organisations, the private sector and international donors (including the City of Windhoek, NamWater, SABMiller, GIZ and Ogilvy & Mather). The aim was to implement water demand management measures through informing, educating and empowering government institutions, Water Marshals, schools and the general public of the magnitude of the crisis and the critical role everyone needed to play in water conservation efforts. In addition to rolling out leak detection and repair processes at scale, the Campaign also embedded Water Marshals in 29 public buildings to investigate, manage and monitor water use, developed a bespoke communications platform to channel targeted information to different stakeholder groups, and adopted an incentives structure to reward exceptional levels of saving.

While the Campaign officially spanned 2016-2018, MAWF is committed to expanding the approach to other regions, given the severe, persistent water scarcity issues that Namibia continues to face. The biggest challenge to replicating the approach is lack of funds: continued efforts are underway to attract additional funding through the Campaign's PPP approach.

# LESSONS LEARNED AND CRITICAL SUCCESS FACTORS

Given the implications of national water demand management and water conservation in shared river basins, SADC acknowledged the transboundary value of these pilots early on. However, creating impact at scale requires substantial expansion and replication across the region. This requires an understanding of the successes and lessons learned over the five-year project duration, to inform the design of future PPP-WLR interventions in SADC.

While the partners, drivers, project contexts and associated socio-economic and environmental challenges differed at each of the pilot sites, several clear themes arose around the barriers and critical success factors to this PPP-WLR approach.

#### **Setting the Parameters**

Understanding the project's level of ambition at the outset is critical. Individual projects will not solve regional or even national water problems; their purpose is to address challenges within a particular and limited context. Decision-makers within the partnership need to be aware of the conditions and limitations at project inception. This includes establishing the project area's baseline conditions and jointly agreeing on targets, as a means of managing expectations around the project results. The Emfuleni pilot achieved substantial WLR results, notable behavioural changes and financial savings in a particular area. However, no overall change in municipal water losses was recorded due to significant increases in water losses in other areas. The limited scope and duration of the pilot made it difficult to achieve visible outcomes at a larger scale in order to catalyse lasting investment and commitment.



# Adapting to the Context

Cultural issues, social dynamics and political landscapes and the varying impacts of climate change on water availability, all affect a project model. While the overarching approach of establishing PPPs to tackle WLR is valid in various contexts, the project design cannot be one-size-fits-all and each component of the intervention must be tailored to given circumstances.

The house-to-house community outreach approach that proved highly successful in Emfuleni did not work in Botswana. Gaborone's employment rates are high, meaning only children and the elderly were home during the day, and they were not amenable to engaging with the Water Marshals. School awareness campaigns and community meetings (set at times appropriate for the employed population to attend) proved far more effective.



# Securing SADC Support

In addition to the support from the SADC Water Division, the pilots also profited from the relationships GIZ has developed nationally, bilaterally and at a transboundary level. Enlisting the support of respected SADC-affiliated entities like river basin organisations to act as independent mediators ('honest brokers') was essential to building trust and accelerating the process of identifying and establishing partnerships.

Involving LIMCOM in the Somarela Thothi (Gaborone) Steering Committee meetings ensured that the Water Utilities Corporation remained engaged throughout the process due to the importance they place on preserving their relationship with the Commission.

ORASECOM helped GIZ understand cultural and historical sensitivities as well as the sensitivities and compatibility issues between private and public sector entities within the Boloka Metsi (Emfuleni) partnership. Their involvement also helped the municipality to develop a transparent and trusting relationship with the partners.



# Mainstreaming Gender & Social Inclusion Dimensions

Despite the TWM programme's ambitions of mainstreaming gender and fostering social inclusion in its projects, the pilots did not contain explicit gender-related considerations in the largely technical WLR actions. However, the community outreach element presented an opportunity to target women and girls.

In Emfuleni the Water Marshal (or 'Water Warrior') positions were appointed based on a formal, transparent application process to ensure the best candidates, who mostly had just passed matric, were selected. Women possessing an in-depth knowledge of water issues at a domestic and community level were well-placed for these roles. As the appointments were based purely on merit (and not on gender) a strong sense of empowerment and self-confidence was instilled in the selected women Warriors, and presents a clear gender dimension of empowerment through equal opportunity.

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**Partnership Pitfalls and Priorities** 

#### **Establishing the Partnership**

The relationship between partners must be mutually beneficial, and all parties must understand and appreciate the benefits accrued both to themselves and others. This includes letting each partner decide what their contribution should be and where it should be directed, understanding the differing business interests and institutional agendas.

At project conceptualisation, an organisational assessment of public-sector institutions should be carried out to understand their corporate thinking and requirements, governance structures, and communication channels, and to establish who the key decision-makers are for the respective project elements. The purpose is twofold - to determine whether there is reasonable potential to influence systems and behaviours to create lasting impact; and to what extent these organisational considerations needs to be factored in to the project's timeline and activities.

The Emfuleni project steering was undertaken by a competent technical committee, and a Municipal Member of Council was always present at both technical and governance project meetings. Nevertheless, high staff turn-over, the long preparatory phase and relatively short field intervention prevented long-term institutional buy-in and uptake of the approach. As in many pilot projects, building relationships among the various partners, understanding organisational nuances, and aligning procedures and systems took more time than initially expected.

Appointing a 'point person' within the public-sector institution with a robust technical understanding of the project, full sight of all management and technical components, and direct links to higher-level decisionmakers and the steering committee structures ensures project momentum, despite disruptions due to staffing changes or other challenges.

In Gaborone, WUC appointed a Project Manager from the Leakage Control Unit who was kept abreast of all project-related developments and could communicate with various teams and staff internally (Water Resources Director, technical teams, publicity manager, and management areas manager). This ensured WUC operated in a cohesive manner – gaining trust and respect from other projects partners.

#### **Strengthening the Partnership**

A strong partnership is based on trust between the partners, including trust that others will fulfil their tasks based on their significant financial and human resources investment in the project and their desire to protect their reputations. It is important to respect the roles of the individual players, appreciate their historical experiences, understand their skills, and give them the space to lead on these areas. Approach a PPP with an open mind; respect the roles of the individuals and the knowledge, skills and historical experiences they bring Dr Thomas Schild, TWM Program Manager

Partnering with stakeholders whose expertise and interests lie outside of the project's technical sphere can elicit alternative solutions and a more innovative approach to project design and implementation. This is often because they place more emphasis on issues linked to their interests, which may lie outside of the direct technical issues - be they social, financial or economic considerations.

In Gaborone, the partnership benefitted from FNBB's notably different perspective. While WUC's focus lay in addressing technical issues, FNBB asked questions on issues of public perception and financial sustainability – forcing the team to adopt a more holistic mindset to problem-solving.



#### **Targeted Communication**

Tailoring messaging to capture the interests of specific audiences is often required to achieve buy-in. Learning how to effectively pitch, communicate, and disseminate information, facts and figures, is key to bringing on board partners, maintaining relationships and gaining traction amongst the wider public.

Water supply is not a one-man show, it's a community commodity and we are all responsible and all accountable. Everyone has a part to play in solving the problem, and it is critical that the public is made aware of this.

Moeti Matswiri, WUC Leakage Control Engineer and Head of Somarela Thothi Project In the Somarela Thothi project, GIZ played a critical role in ensuring the right information was communicated to the relevant parties, in the appropriate manner. They assisted in translating technical information into a succinct, simplistic format that was suitable for the FNBB team (who often had limited time to meet and were primarily interested in high-level results rather than technical details).

LIMCOM's involvement in the Somarela Thothi project also extended to information dissemination. Through LIMCOM, progress could be communicated easily at the basin level.

In Emfuleni, political interest in the pilot was leveraged through the Water Marshal component which spoke to the pertinent issue of localised job creation. This was viewed by politicians as a valuable outcome and ultimately garnered their interest.

Namibia's MAWF recognised the unique relationship that stakeholder groups have with water supply issues and developed a framework with project partners to identify who required what information (including content, format and detail) to support a tailored awareness-raising strategy.

Despite this, MAWF found that users quickly become complacent about the country's pressing water scarcity issues and they therefore used (and continue to use) international and national water commemoration days as platforms to raise public awareness. This form of outreach (which preceded the National Water Savings campaign) also demonstrates the government's ongoing commitment to managing the challenge, and ultimately helped attract private sector interest from SABMiller and Ogilvy & Mather in the 2016 Campaign.

# **Monitoring and Evaluation**

A fundamental element of any pilot project is the establishment of effective monitoring and evaluation from the outset. The key to attracting further interest and investment for scale-up and replication lies in the ability to accurately communicate progress, results and projected future outcomes to decision-makers and interested parties.

If you can't measure impact, you're nowhere; you can't attract future funding if you can't demonstrate savings. Willem Wegelin, WRP (appointed Management Consultant for Boloka Metsi & Somarela Thothi)

While robust quantitative indicators are essential, the community outreach component of these WLR pilots required a process to capture qualitative, behavioural changes, targeted at both the pilot site communities and within the public sector institutions.

The monitoring and evaluation approaches differed for the three pilots, and different lessons can be drawn from each.

Historical data from Rand Water (spanning the previous 10 years) was used to develop a baseline and linear projections for the Boloka Metsi (Emfuleni) pilot, against which targets could be set and progress measured. This was tracked and reported on monthly. The pilot also conducted a Knowledge, Attitude and Practice (KAP) Survey pre- and post- implementation. The survey results reflected consumers' perceptions of the municipality and attitudes toward water conservation and payment for services. This information was used to inform the design of the community outreach initiatives. The post implementation responses demonstrated notable positive changes in attitudes and behaviours. In retrospect, there would have been value in conducting a similar survey within the municipality to better understand behaviours and attitudes within the organisation and how these could impact on the ultimate success of the pilot.

Unlike Boloka Metsi, the Somarela Thothi pilot did not have historical data of sufficient quality to establish a baseline. Recent data was also not suitable given that water rationing had been underway for 6 months (meaning the interrupted supplies distorted readings). The team therefore agreed to use minimum night flow levels, and the reporting process referred to a reduction in minimum night flow throughout the pilot, rather than total demand. Even in instances where data is lacking or insufficient, it is still possible to establish a reliable M&E system.

The Somarela Thothi M&E system was accompanied with robust baseline assessment training, tools and guidelines, to ensure that WUC staff were capacitated to manage the process beyond the pilot duration and to upscale the process across Botswana.

In Namibia the MAWF initiated a process to develop an M&E System that should also be able to retrospectively assess progress. It is hoped that this will generate further interest and investment from the private and development sectors.



# Avoiding Perverse Outcomes

No matter how well thought-out and planned an intervention may be, there is always a risk of unintended consequences. Being able to proactively respond to these challenges requires a robust risk assessment strategy that is jointly owned by the project partners and treated as a living document throughout the project.

A key component of both the Somarela Thothi (Gaborone) and Boloka Metsi (Emfuleni) pilots was of the upskilling of emerging local plumbing companies, Water Marshals and water conservation officers. However, the nature of this type of short-term contract work is that there is no guarantee of continued employment beyond pilot completion as this decision ultimately rests with the public sector institutions. Whilst WUC were able to retain their water conservation officers as part of their scaling-up process, the Emfuleni Local Municipality made no contingency plan to employ or contract the Water Marshals and plumbers beyond the pilot.



#### **Ensuring Long-Term Sustainability**

The purpose of a pilot is to test a thesis within defined parameters and demonstrate the potential value and impact of such an approach. The intention and primary focus of a pilot is not to embed long term sustainability beyond the project duration. However, by designing and implementing a pilot in such a way that empowers the institutions involved to maintain momentum and drive the pilot approach forward (ideally at a greater scale) beyond its duration, sustainable impact can be achieved. Mechanisms for achieving this are discussed below, drawing on the experiences from the three pilots.

# Building in-house public sector capacity

Building in-house capacity through external experts providing training on systems, processes and technical issues embeds a strong sense of ownership of the project in the public sector. Empowering staff at all levels and establishing clear lines of reporting and communication ensure issues on-the-ground are appropriately escalated to steering committee levels.

Much of Boloka Metsi's technical work was carried out by external consultants who struggled to engage regularly with the municipality's in-house technical team, significantly limiting the potential to build institutional capacity. A key shift in the Somarela Thothi's project was the decision to embed an expert at WUC, providing focused, on-going capacity building. As a result, the relationship still exists to date through the form of regular communication and ad hoc advisory support.

# Entrenching a sense of ownership and joint responsibility amongst users

Empowering community members through capacity building, outreach and education establishes a sense of responsibility and creates a conducive and effective environment for jointly solving problems. The local communities in Emfuleni were initially unresponsive and even hostile to the project team's engagements. By maintaining an active presence on the ground and practically illustrating their commitment to improving living conditions in the area, a gradual shift in receptiveness occurred. Residents started acknowledging the critical role that they, as the users, needed to play in addressing water losses by attending to household leaks and escalating issues beyond their control to Water Marshals.

# Securing long-term funding

WLR efforts must be sustained over extended periods and momentum is quickly lost if funding deficits bring action to a standstill. It is therefore critical that the partnership supports the public entity in establishing ongoing funding to cover the cost of technical interventions and community outreach. This might include a mechanism such as a revolving fund.

Namibia's MAWF recently experienced a Campaign funding deficit that has impacted the effectiveness of the Water Marshal component, as there are insufficient funds to cover these critical activities. Establishing the planned M&E System will be key to garnering continued support (from existing partners and others) in the future.

#### Establishing modalities to scale-up

Mechanisms and opportunities to scale up or expand the approach beyond a donor's involvement should be explored prior to pilot completion. This requires a proactive approach to developing an exit strategy earlyin the process that lends itself to a post-pilot phase whereby the public institution can maintain project momentum and continue to attract external support to scale-up operations. The Somarela Thothi project is a best practice example of this.

12 months into the Somarela Thothi project, WUC was confident they could extend the pilot to Lobatse. They self-funded the measures and achieved significant savings. The pilot therefore provided the platform for the public-sector entity to expand the project independently, allowing them to test their ability to take the WLR reduction measures forward and demonstrate their capacity for doing so to other interested investors, but with the security of backstopping support from the partnership if needed.

FNBB has also indicated an interest in increasing their investment and expanding the partnership model in the region based on their experience as a private sector partner of the Somarela Thothi project.

# PILOTING AN APPROACH TO INFORM BEST PRACTICE

While the three pilots differed in terms of timing, scale, scope and outcome, they collectively demonstrated that a PPP model is both viable and suitable for the water sector context. Seed funding (channelled through a PPP arrangement) can serve as a catalyst for change within public sector institutions, provided the partnership is founded on common interests and jointly-agreed outcomes. Even at a pilot scale, such an approach can generate significant institutional, financial, environmental and social benefits.

The multi-country pilot process also demonstrated that there is no clear-cut 'best practice' formula or generic approach to a successful PPP-WLR intervention. In upscaling or replicating this model, the conceptualisation, design and execution of the project should be informed by the specific urban water supply context (considering local, national and regional impacts), and the roles, interests and competencies of each project stakeholder.



# Collective Action for Water Loss Reduction

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