

Getting to scale in urban water supply



Scale-up of urban water services which meet the needs of low-income populations is a pressing challenge in most African cities. Ensuring the quality, reliability and affordability of water services to low-income residents typically remain elusive goals. This Topic Brief offers lessons for scale-up deriving from WSUP's 2008-2012 programme in Maputo (Mozambique) and Antananarivo (Madagascar). The WSUP experience suggests that useful strategies include the following:

- i) overcome the prevailing pattern whereby connections are unaffordable for the poor, and engage simultaneously to support and encourage a pro-poor agenda;
- ii) develop capacity at all levels to strengthen management and ensure accountability, within a policy of formal cost recovery;
- iii) recognise that contractual responsibilities and incentives for delegated management take time to become clear, so that contracts will need flexibility to evolve over time;
- iv) address non-revenue water, highlighting that NRW reduction can increase revenues and enable improvement of services to low-income areas; and
- v) adopt a realistic and incremental approach to achieving full water supply services at scale.

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1. Introduction

1.1. The challenge of going to scale

Some donor investments in urban WASH have enabled improvements in access to services for low-income populations at a relatively small scale, by supporting non-governmental organisations (NGOs) or community-driven initiatives. Other investments have supported policy and institutional change at the city level, aiming to generate pro-poor outcomes by a more top-down approach (e.g. through the establishment of pro-poor units within utilities). A further approach - typically applied by development banks through governmental institutions, rather than NGOs - has been to invest heavily in infrastructure and at the same time pursue high-level institutional reform, with the aim of achieving a "step change" in utility performance; but such approaches have often been of little immediate

- ¹ DTF & NWASCO (2005) Reaching the Millennium Development Goals for Water Supply and Sanitation in Zambia. The Urban Perspective Lusaka: Devolution Trust Fund & National Water Supply and Sanitation Council.
- ² Komives K, Foster V, Halpern J, Wodon Q & Abdullah R (2005) Water, Electricity and the Poor: Who Benefits from Utility Subsidies. Washington, D.C.: World Bank.
- ³ UN-HABITAT & DUAD (2006) Community Managed System for Operation, Billing and Collection of Water Charges. Policy Paper 1. Bhopal: UN-HABITAT & Directorate of Urban Administration and Development, Government of Madhya Pradesh.
- ⁴ Connors G & Brocklehurst C (2006) A Utility's Pro-Poor Approach in Bangalore. Washington, D.C.: Water and Sanitation Program, World Bank.
- ⁵ Grönwall J, Mulenga M & McGrahan G (2010) Groundwater, self-supply and poor urban dwellers. A review with case studies of Bangalore and Lusaka. London: International Institute for Environment and Development.

benefit to those unserved by existing networks (in some cases the majority of urban residents). The provision of decent and affordable services for low-income populations at city-wide scale remains an elusive goal in most developing cities.

The challenges to achieving full coverage of water services in cities are diverse and well documented (WaterAid 2009; Banerjee & Morella 2011). Recurring themes include:

- Rapid population growth set against a huge backlog of residents waiting to access services and, in many cases, increasing inadequacy of existing bulk water production.
- Vicious cycles of ageing infrastructure, water losses, declining service, low levels of revenue collection, inadequate maintenance of existing networks and very limited investment in network extension.
- High upfront connection costs leaving low-income consumers to rely on expensive, unregulated alternatives even when living in networked areas.
- Inadequate incentives for official service providers to prioritise services to low-income households, and a perception that they are unable or unwilling to pay.
- A failure to stimulate innovation or capitalise on innovations by the local CSOs, community organisations, (informal) private sector providers and households themselves, which in reality provide access for many low-income residents.
- Low political priority attached to services for low-income populations, and in some cases a deliberate policy not to serve informal or new peri-urban settlements in an attempt to control urban expansion.

These are not insurmountable challenges, and many innovative models for pro-poor service delivery have been proposed to overcome them, including: service provision through mini-networks or kiosks,¹ in some cases on a decentralised basis using groundwater from boreholes; redistributive cross-subsidy of connection charges, making access more affordable for low-income groups and increasing utility revenues;² flexible billing enabling low-income households to manage payments;³ remuneration arrangements for utilities which incentivise service to low-income households; service delivery partnerships with small-scale private providers and community organisations; and flexibility over documentation requirements for obtaining a connection.⁴

However, for the most part these approaches have not been adopted as part of a city-wide strategy for reaching low-income households. Meanwhile households find their own solutions, particularly from private wells and boreholes: a self-supply approach which needs to be better understood by service providers and supporting agencies.⁵

Nonetheless there are some examples of cities which are thinking about pro-poor services at city-wide scale. Some professionalised utilities have recognised the large customer base represented by low-income populations, and have been able to develop new approaches to serve them (e.g. Uganda's NWSC which has established pre-paid kiosks in low-income areas). Where utilities struggle with lower capacity or find it difficult to engage low-income communities directly, there is good evidence of the potential for partnerships to enable change (Tucker et al. 2010). Partnerships between official service providers and small-scale informal providers, civil society organisations (CSOs) and community organisations can effectively combine the socio-economic knowledge of the latter and their ability to respond dynamically to the demands of low-income households, with the resources and mandate of a utility to implement on a large scale: a powerful synergy. Enabling organisations of poor residents to lead their own improvements, with official support and as part of a city-wide learning programme, has shown impressive results in the Baan Mankong slum-upgrading programme (see Box 1).

Box 1: City-wide slum upgrading by empowering community organisations under Thailand's Baan Mankong programme.

Thailand's innovative Baan Mankong programme was established in 2003 with the aim of improving housing conditions for 300,000 households across 200 cities in five years. The programme adopted a bottom-up vision of development, channelling subsidies and loans directly to poor communities who were responsible for planning and implementing improvements in housing and basic services. Key to the programme's success, though, is that community-based organisations were well supported by a broad partnership involving local government, universities and NGOs. These organisations worked together with communities to survey low-income areas and develop upgrading plans. Low-cost, pragmatic and flexible solutions which build on existing conditions and prior investments by low-income households were the norm, rather than wholesale redesign of settlements or relocation. Pilots for learning were often an important part of the process. Households carried out much of the building work themselves, allowing scarce resources to be used to the maximum. These bottom-up local development initiatives were then integrated into longer-term city-wide plans. The programme is reported to have had a transformative effect on the lives of poor urban residents, beyond the improvements in their physical environment. Through determining their own development pathways, community organisations have grown in confidence and developed stronger relationships with local government, while municipalities have increasingly recognised them as partners (rather than simply targets) in urban development processes.

Source: Boonyabantha (2005).

Experience therefore suggests that delivering water services to low-income households within growing cities should be achievable if sufficient political commitment and resources can be mobilised to design, adapt and implement a suitable set of approaches in each context, and if the necessary capacities can be built within service providers. The drive for pro-poor reform can come from different stakeholders within the city, but the engagement of official service providers with a mandate to implement at city scale is critical for city-wide impact. Donors and external agencies can also play vital roles in brokering partnerships, providing technical and strategic support, resourcing the initial costs of pro-poor initiatives, and making the case for a pro-poor agenda in policy discussions.

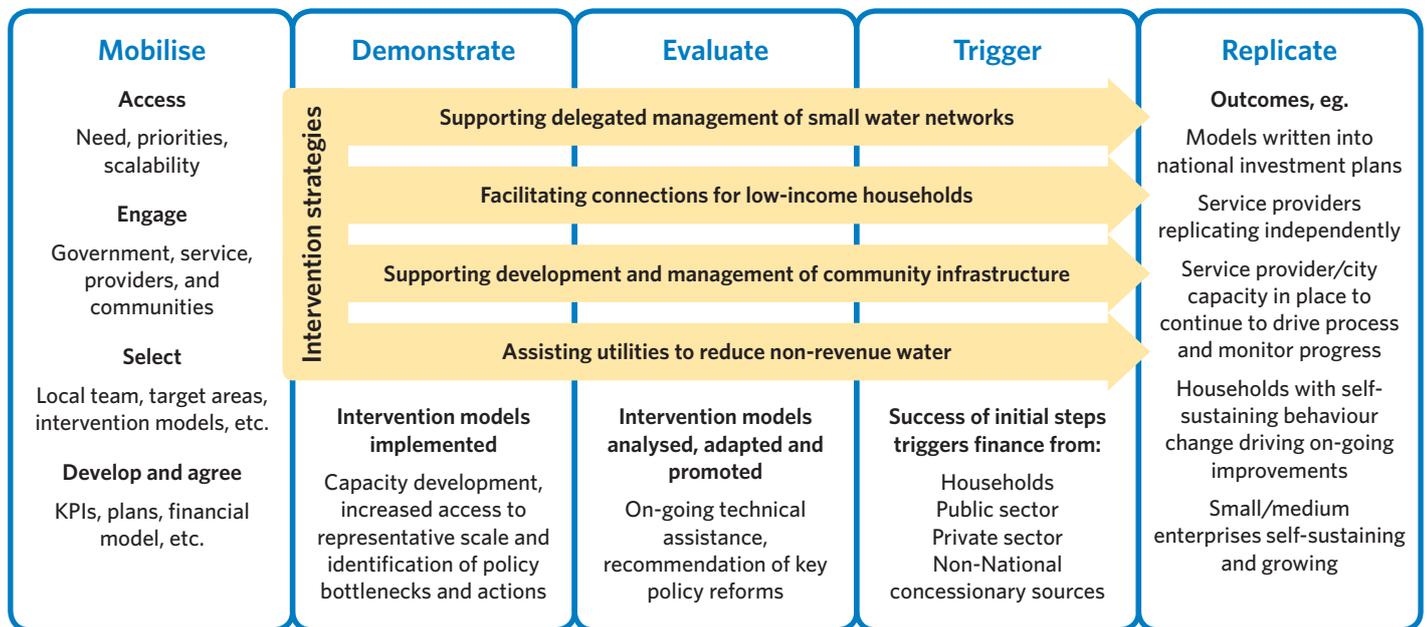
The African Ministers Council on Water (AMCOW) Country Status Overviews, which examined national level progress in delivering, enabling and sustaining water and sanitation services in 32 African countries conclude that "it is likely that the progress made by the low-income stable countries [the top performing group outside South Africa] has resulted from an interaction of stability, strong sector leadership and support from development partners", and note that "demonstrating sector leadership drives a virtuous cycle of increasing capacity and financing".⁶ A similar principle seems to apply at city level, although there has been much less systematic documentation of this experience.

1.2. WSUP's strategy: from demonstration to scale

At the heart of WSUP's approach is the demonstration of new approaches for pro-poor service delivery. WSUP refers to these demonstrated approaches as "intervention models". Core to all of these models is the concept of mutual benefit to low-income customers and service providers: from careful selection of contractual mechanisms to involve small independent providers, to translating non-revenue water (NRW) reductions into increased financial and water resources for serving low-income areas. A core concern is that intervention models must be financially viable in themselves, or enhance the overall financial viability of the service provider, to permit scaling up and ensure sustainability of the services. WSUP's demonstration of new approaches is done in collaboration with service providers, together with the provision of relevant capacity building and promotional activities. This is followed by evaluation (to assess the viability of the model and indicate any refinements) which is intended to trigger uptake by service providers and the release of financing for scale-up. This pathway is summarised in Figure 1.

⁶ de Waal D, Hirn M, & Mason N (2011) Pathways to Progress: Transitioning to Country-Led Service Delivery Pathways to Meet Africa's Water Supply and Sanitation targets. Nairobi: Water and Sanitation Program - Africa.

Figure 1. WSUP's process model for triggering urban water supply services at scale, and selected intervention models. Adapted from WSUP (2012).



⁷ UN-HABITAT (2011) External Evaluation of UN-HABITAT's Water and Sanitation Trust Fund. Part 1: Synthesis Report. Nairobi: UN-HABITAT.

⁸ WSUP (2012) WSUP models. Internal document, Water & Sanitation for the Urban Poor.

The mobilisation stage is critical to understanding WSUP's way of working. During this phase WSUP works to bridge the gap which often exists between official service providers and a host of potential partners already involved in some form of service delivery activity, including CSOs, community organisations, private enterprises, and higher and lower levels of government. This creates the opportunity for new working models to be designed, based on partnerships, capitalising on synergies and providing space for dialogue and shared learning and for fostering new relationships between the different actors. The intention is that these relationships will evolve, through the design and demonstration of intervention models and triggering of investment finance, into new formal governance arrangements for the sector which enable service delivery for low-income households at city-wide scale.

The fact that WSUP brings a budget for implementation, even at relatively small scale, has also helped it to engage partners at this mobilisation stage, and experience suggests that some initial investment in visible service improvements can be very effective in generating service provider – and beneficiary – enthusiasm for pro-poor programmes.⁷

The process and intervention models, as described in Table 1, represent WSUP's emerging thinking and a consolidation of 5 years' organisational experience across 8 low-income cities. In Maputo and Tana a number of general intervention strategies have been attempted, which have not been branded by WSUP as intervention models as such, but which have nonetheless played a part within the overall effort to pioneer "the development of a range of replicable and scalable pro-poor models for improved urban WASH service delivery in low-income areas".⁸ To distinguish these from the more recently branded intervention models described in Figure 1, the term "intervention strategies" is used in this Topic Brief to describe the four components of WSUP's work in Tana and Maputo: these are examined in Section 2, in order to evaluate their progress and success, and draw lessons for other agencies engaged in urban WASH.

Before elaborating on these lessons, the elements involved in achieving service delivery at city scale need to be unpacked a little further. An important first step is to identify broad progress markers by which progress towards scale can be recognised, given that full city-wide implementation is unlikely to be reached in the short to medium term.

Intervention strategy	WSUP vision for scale-up
<ul style="list-style-type: none"> Supporting delegated management of small networks (Maputo) 	<p>Small, local private operator provides more efficient and effective management of a defined portion of the main service area –under a management contract that makes clear the mutual expectations and obligations of all parties– through:</p> <ul style="list-style-type: none"> Enhancing customer focus, including setting up a local office in the delegated area Improving financial viability, in particular by tackling leakage and illegal/unmetered connections, and by rationalising the customer base
<ul style="list-style-type: none"> Facilitating water connections to low-income households (Maputo) 	<p>Low-income households across the city are able to obtain household connections, with financial and administrative barriers to connection reduced, through:</p> <ul style="list-style-type: none"> Supporting enhanced relations between the main local service provider Águas da Região de Maputo (AdeM) and customers in low-income bairros⁹ through institutional reform and facilitating the process of getting a connection Policy advocacy to reduce connection fees and subsequent support to AdeM and the asset holder Fundo de Investimento e Património do Abastecimento de Água (FIPAG) to secure additional external investment funds Supporting AdeM and FIPAG to implement tertiary networks and connections in low-income bairros
<ul style="list-style-type: none"> Supporting development and management of community infrastructure (Tana) 	<p>Water kiosks and washblocks available across low- and mixed-income areas of Tana, managed for cost recovery by water user associations (WUAs), through:</p> <ul style="list-style-type: none"> At municipal level, strengthening WUA management and promoting a policy for cost recovery from community infrastructure, with monitoring of cost recovery levels at demonstration blocks (constructed by WSUP) to show that user payments can meet operations and maintenance requirements, and in some cases capital costs Lobbying the utility (JIRAMA) to prioritise and streamline the connection of community water infrastructure, and to manage commercial relationships with WUAs more effectively
<ul style="list-style-type: none"> Assisting utilities to reduce non-revenue water (Tana and Maputo) 	<p>Utilities improve and extend services in low-income areas, using increased revenue and bulk water resources made available by non-revenue water (NRW) reduction programmes, through:</p> <ul style="list-style-type: none"> Provision of expert technical assistance and equipment, and establishment of NRW management systems in utilities Leveraging improved services for low-income areas with financial and water savings associated with NRW reduction

Table 1
Water intervention strategies in relation to WSUP's vision for scale-up.

⁹ The Portuguese-language term "bairro" means urban district (whether low-income or not).

1.3. What exactly is scale?

It is useful to distinguish between scaling out (horizontal replication of approaches to reach more beneficiaries) and scaling up (vertical integration into official policies and procedures, implying the development of supportive capacities and systems).

It is theoretically possible for water supply to be delivered at scale without strong domestic ownership, through scaling out of a model introduced by an external agency, primarily with donor funds. While this may enable people to access services, there is a high risk that national service providers will not have developed the necessary capacities, management systems, governance arrangements and commitment to sustain, extend and improve services into the future. In contrast, WSUP's ambition is to achieve scale by using an initial external investment in demonstration services to leverage increasing resource commitments (financial and in-kind) from domestic service providers along with uptake into formal policies and procedures.

Assessing progress towards scale requires assessing the extent to which ownership of service delivery approaches resides within the national/city system rather than external agencies. Increasing resource commitments from domestic service providers and uptake of demonstrated approaches into policies and plans are important progress markers, even if the number of beneficiaries has not yet increased beyond the demonstration scale. However, in themselves neither of these guarantees eventual implementation at scale.

¹⁰IEG (2009) Improving Municipal Management for Cities to Succeed. Washington, DC: World Bank Group.

It is also possible to provide water supply infrastructure at large scale, under a domestically-led programme, without due attention to capacity to maintain service levels into the future, particularly in the face of increasing demand. Rolling out infrastructure in a bid to increase coverage, without a broader focus on system-level sustainability, carries a risk that services provided will decline over time. There are numerous examples of both government- and donor-funded projects that have fallen into this trap.

Evaluations of the UN-HABITAT Water and Sanitation Trust Fund, which like WSUP focuses on capacity building and the demonstration of innovative approaches for pro-poor urban WASH, emphasise the importance of developing suitable governance arrangements and capacities within the system to sustain gains made (UN-HABITAT, 2011a and 2011b). Municipal and utility capacities are particularly relevant at city level. The following simple breakdown of critical municipal capacities, used by the Independent Evaluation Group (IEG) in a review of World Bank municipal development projects, is useful although not comprehensive:¹⁰

- **Planning capacities**, including information systems, monitoring and evaluation, spatial planning and investment strategy.
- **Financial capacities**, including financial management, revenue mobilisation and stimulation of private finance.
- **Capacities to manage service provision**, including economic assessment, procurement, management of O&M, and pro-poor strategy.

The necessary capacities to sustain services thus go beyond those which may be associated with the implementation of a particular approach. In particular, it is worth noting the importance of revenue mobilisation. IEG (ibid) note that “evidence of strong own-revenue flows would be an important indication of municipal autonomy in service delivery” (p.4). While one goal of WSUP’s demonstration work is to leverage investment finance from donor agencies, an important aspect of sustainability is the ability of the city system to raise domestic funds to finance at least the operational costs associated with scaling up.

The capacity of the urban water system to maintain, improve and extend service levels into the future is of particular importance given the highly dynamic nature of developing cities. Urban demographics, and therefore the nature of demand, are in constant flux, while water resource constraints and climate change-related risks (e.g. of flooding) can be expected to increase in many contexts. This requires systems which are not only capable of maintaining service levels under current conditions, but have the adaptive capacity to respond in a forward-looking way to emerging challenges (see Box 2).

WSUP has sought to intervene at various points in the system with the goal of promoting uptake and replication of specific models (such as those described in Table 1 above), while simultaneously building important system-wide capacities and promoting pro-poor orientation across the board (see Figure 2).

Box 2: Adaptive service delivery systems

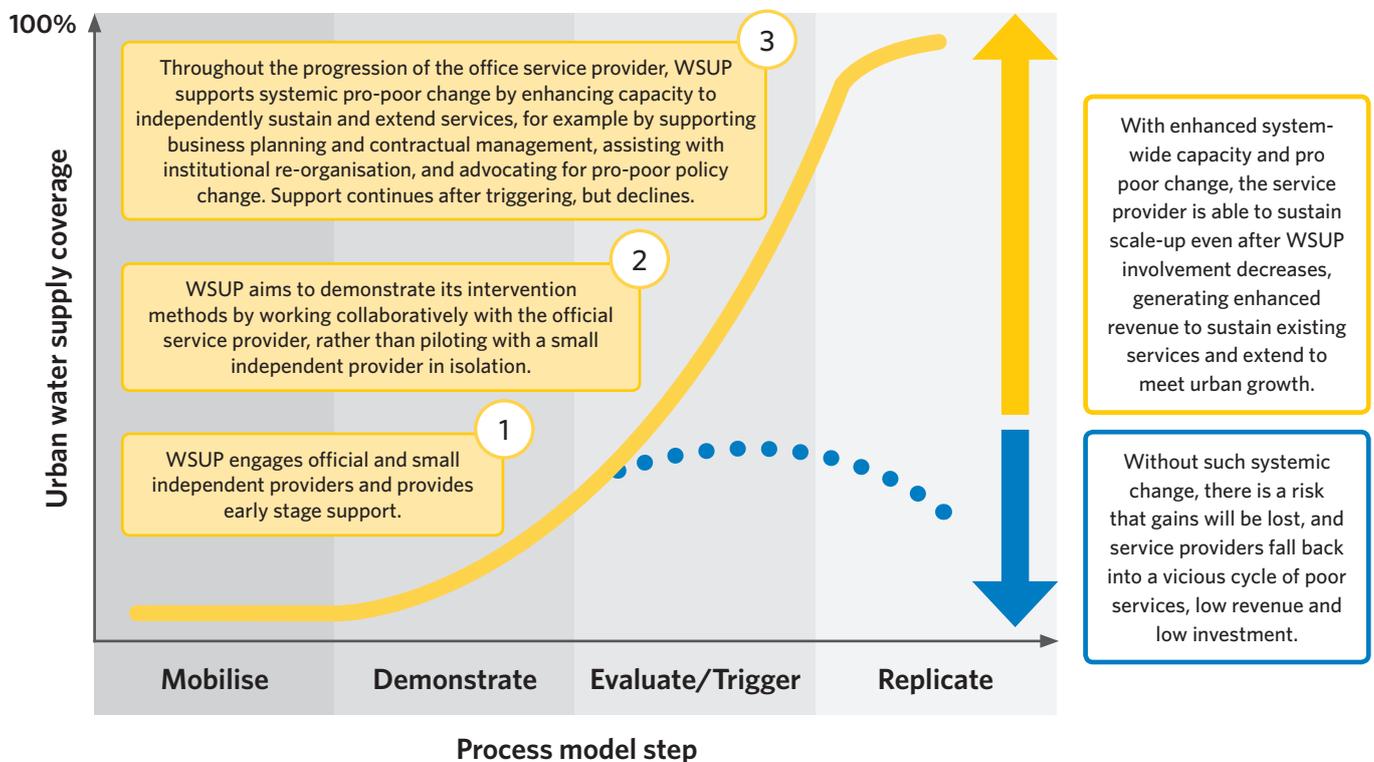
A service delivery system includes: the full range of actors and institutions involved in service delivery in a broad sense (policymakers, planners, financiers, utilities, private suppliers, community and civil society organisations, households themselves); their activities, functions and technologies; and –critically– the interactions between these institutions and processes. These interactions include governance arrangements and official and unofficial flows of resources and information.

Many important functions relating to scale, and the ability to sustain any scale gains made, lie at system level and not within any one institution or process. These fall under the banner of adaptive capacity, a concept which has taken centre stage in the climate change literature but which can be applied to any system facing rapidly changing, unpredictable pressures.

Five interlinked components which contribute to adaptive capacity at the system level have been identified:¹¹

- An asset base which allows the system to respond to evolving circumstances.
- Flexible institutions which prioritise equitable entitlements to assets and services.
- Collection and analysis of information and production of new knowledge to inform adaptation.
- An enabling environment for innovation and experimentation, and the ability to explore niche solutions and take advantage of new opportunities.
- Flexible forward-looking decision-making and governance, as the system anticipates, incorporates and responds to changes.

Figure 2. How WSUP aims to support systemic change and capacity for maintaining and extending pro-poor services throughout the process model.



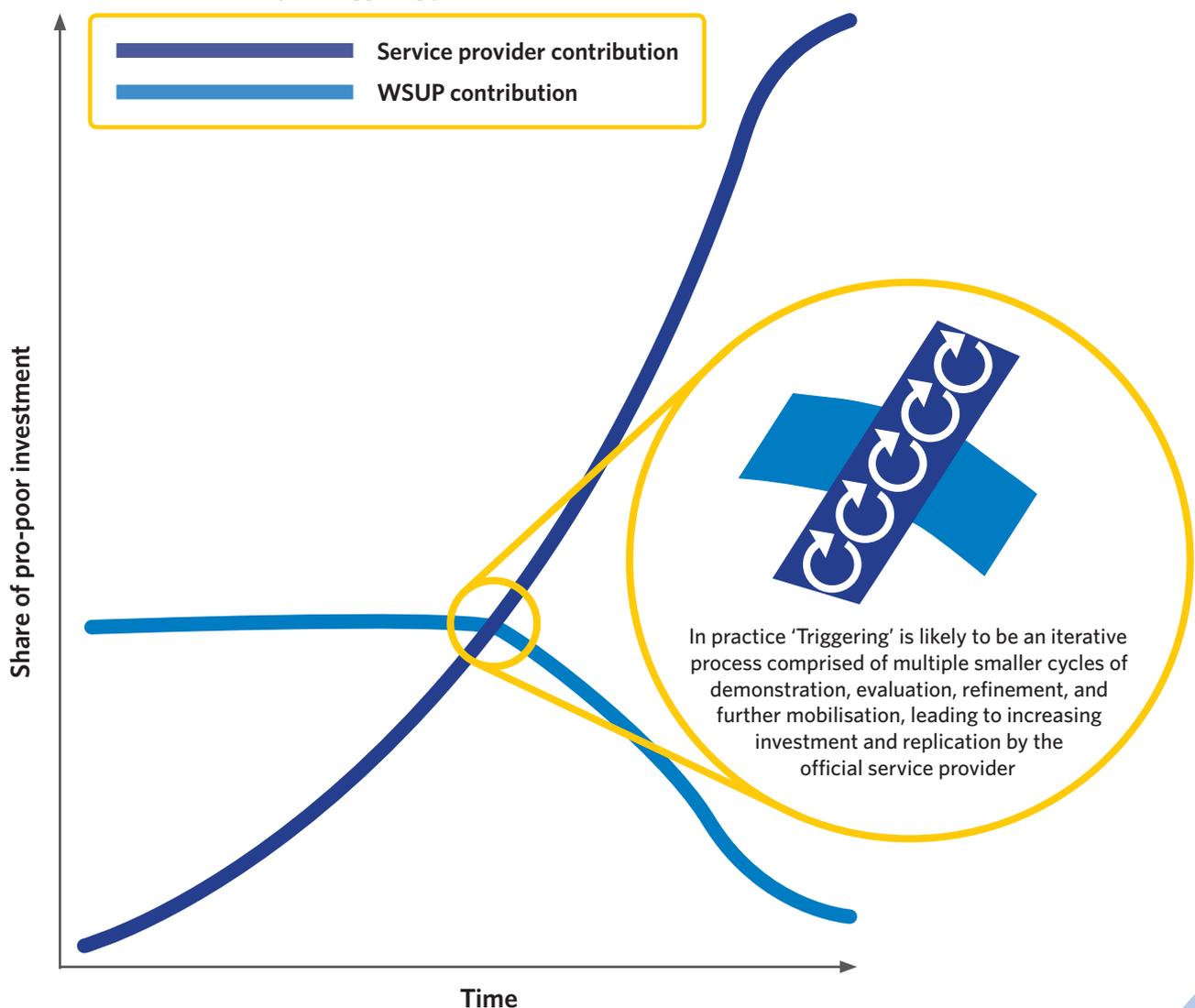
¹¹ Jones L, Ludi E & Levine S (2010) Towards a characterisation of adaptive capacity: a framework for analysing adaptive capacity at the local level. London: Overseas Development Institute.

1.4. Unpacking the “trigger”

Figure 2 suggests that at a certain point following the demonstration and evaluation process, uptake into official policy and finance for scale-up will be “triggered”. In reality this triggering is unlikely to be a single event, but will involve a process of further testing, gradual increase in investment of nationally owned resources (domestic and donor funds), and incremental scale-out to increasing numbers of beneficiaries, probably with adjustments to the model over time and a progressive reduction in the need for inputs from WSUP and other external partners. The wider political economy of the sector/city will come into play during this process, and the realities encountered may require re-evaluation of the model, additional mobilisation around pro-poor goals, and further adaptation of approaches. The desire to manage the risks involved in applying new approaches, and simple resource limitations, are also likely to mean that scale-up will be incremental, at least initially, and subject to multiple decision-points, rather than resulting from a single trigger event. This is represented in Figure 3.

Accepting that scale-up of services for low-income households will be incremental does not imply “acceptance of the status quo”: i.e. it does not denote acceptance that low-income households and peri-urban areas will be the last to be served (as a result of unaffordability of services, the lower profitability of these households for utilities, their location outside existing distribution networks, and a lack of political priority attached to pro-poor service delivery).

Figure 3. The iterative nature of the triggering process.



These discussions around what scaling entails, and potential progress markers, provide a platform for assessing WSUP’s achievements in Section 2, as well as for drawing wider lessons for agencies who share the goal of assisting service providers to achieve adaptable, sustainable scale-up. Figure 4 summarises the types of progress marker which may be relevant at each stage of the WSUP model from Mobilisation to Replication (notwithstanding the likelihood of iteration, rather than linearity, in practice). We will return to reflect on these progress markers in the concluding discussion.

Figure 4: Proposed markers of progress towards scale along the WSUP process model for urban water supply.

	Extent of ownership of the programme by domestic actors	Input share from domestic sources	Nature of WSUP involvement	Number of beneficiaries / scale of implementation	Systems and policies in place to support and sustain
Mobilise	Commitment to enabling and learning from the WSUP demonstration programme	Relatively low	Lobbying, partnership building, design of models	Possibility at pilot level to mobilise interest	Not yet except insofar as the model builds on existing systems
Demonstrate	Increasing engagement in implementation, monitoring and evaluation over time as models and systems for implementation are refined. Domestic actors increasingly in the driving seat	Allocation of staff time and facilities to participate in implementation and evaluation. Progressively increasing share of financial costs and staff requirements	Initially leading implementation and analysis while providing capacity building to sector actors and fostering working relationships. Shift to a supportive / monitoring role over time	In the order of 100,000 households targeted. Progressively increasing to new neighbourhoods	Built during this process as demonstration includes development of support systems (inherent in delivery) and evaluation indicates policy and governance implications
Evaluate					
Trigger					
Replicate	Model formally adopted and replication led by domestic service providers	Entirely financed from domestic sources (or finance independently raised by domestic system)	Limited or no engagement around specific models. Focus on ensuring system-level capacities, policies and governance arrangements are in place for sustainability	More rapid, but still incremental increases up to citywide scale or beyond	Essential to ensure sustainability of scale gains, though scale may take place without them

“ Through delegated management, total revenue receipts have grown by almost 150% ”

2. Assessment of intervention strategies

This section analyses specific experience and lessons with four types of intervention strategy adopted in Tana and Maputo: 2.1) Supporting delegated management of small networks; 2.2) Facilitating connections to low-income households; 2.3) Supporting development and management of community infrastructure; and 2.4) Assisting utilities to reduce non-revenue water.

2.1. Supporting delegated management of small networks

In Maputo, management of part of the main utility's lease area (the Liberdade district) was delegated to a smaller service provider, EMA, in March 2010, on the rationale that a smaller, more locally focused operator would be able to deal better with the particular challenges of serving peri-urban areas. WSUP was engaged to provide technical assistance across a number of areas, including financial modelling, leakage reduction, metering, contract negotiation and investment planning, as well as subsidising an expansion project to connect a further 600 customers (focused on low-income areas) to the piped water supply network.

The piloting of delegated management in Liberdade was originally intended by the asset holder FIPAG to be a demonstration project which might eventually permit replication. The main actors were aligned to find, test and refine improved and replicable ways to meet the particular challenges of providing water services to peri-urban, and predominantly low-income, households. On the basis of data collected to date, the model appears to have worked reasonably well. EMA has been able to grow total revenue receipts by almost 150% and increase the collection ratio from 71% to 82%. Evidence suggests an improved response to customer complaints, and that the opening of a local office in Liberdade area has made payment more convenient. However, the full picture of improved service quality (e.g. supply continuity), as well as the full extent to which low-income households have benefited compared to the better-off, is not yet established.

2.1.1. Enhancing customer focus

Part of the rationale of delegated management is to enable closer liaison between the managing entity and its customers. EMA has set up an office within Liberdade bairro, including 11 operations staff, and 6 staff providing meter reading, billing, and customer service functions. Customers can now pay bills, and potentially address their complaints, to an office directly within their neighbourhood. EMA has also invested its own resources in household repairs, meter replacements and meter installation (Clark, 2012). While meters may not appeal to customers in the short term, they increase the prospects of cost recovery, so that EMA can ultimately provide an effective and affordable service. WSUP has also helped EMA to bring peer pressure to bear on the community as a whole, pointing out that illegal connections are effectively being subsidised by paying households. While more evidence is needed, the changing balance of reconnections to disconnections may be an important sign that the benefits of paid-for, quality piped water services are in demand among households, including in peri-urban areas: an important pre-requisite for taking such services to scale.

2.1.2. Improving financial viability

In addition to tackling commercial losses arising from illegal connections and unmetered billing, EMA has also undertaken a dedicated programme of leak reduction, locating and repairing over 3000 leaks in the three and a half years of WSUP's involvement. Despite the successes, it is difficult to establish levels of non-revenue water (NRW) conclusively, partly due to continuing uncertainty over how much water is actually supplied to the EMA-managed system by AdeM. WSUP advised that there should be "as clear a boundary line as possible between the two contracting entities" (Clark 2012): i.e. a pure bulk supply contract under which AdeM supplies EMA with bulk water and the latter is responsible for operation, maintenance, billing and collection, and therefore has full responsibility for the customers it serves. However, in the course of contract negotiation AdeM sought to retain ultimate responsibility for the customers,

¹ Garbarino S, Holland J, Brook S, Caplan K & Shankland A (2011) *The Political Economy of Sanitation: How can we increase investment and improve service for the poor?* Washington DC: Water and Sanitation Programme.

rather than transferring them to EMA. The conditions for payment between EMA and AdeM have also been continuously debated, particularly following adjustment to tariffs by the regulator Conselho de Regulação do Abastecimento de Água (CRA).

It is testimony to the determination of those involved and, potentially, to the replicability of the model that – despite the issues with the contract – EMA has achieved a good measure of financial viability. According to the technical adviser contracted by WSUP, EMA operated profitably between March 2011 and February 2012, with income exceeding costs by US\$58,000, representing 29% of turnover (Clark 2012). More importantly, EMA has chosen to invest some of its profits back into the business, for example in establishing and staffing the local office described above: potentially a sign of increasing ownership and internal investment in systems that will help it to go to scale.

However, in terms of investment to date for scale out within the Liberdade area, a substantial proportion has been contributed by WSUP. The scarcity of external funds for network expansion and to subsidise connections, nominally to be provided by the asset holder FIPAG, is not confined to Liberdade (see Section 2.2). Lack of funds has also constrained how far EMA can take its leak repair work. Overall, it is important to note that, even where a piped-water service delivery model appears financially sustainable on a day-to-day basis, significant scaling out is likely to require external finance for capital. This does not render the EMA model un-scalable: indeed, the EMA pilot meets a need for viable business models that are capable of growing and sustaining themselves as external investment becomes available and the network expands. Given the large number of capital intensive rehabilitation and expansion projects that have proved unsustainable due to weak management capacity, this is a pressing need.

2.1.3. Key lesson: Supporting delegated management of small networks

The main lesson from the EMA experience is the importance of getting the right contractual arrangements in place for delegated management, so that all parties are clear about their responsibilities, remuneration, and indeed their share of bulk water. This is not to say that the preferred arrangement in Maputo (“pure” bulk supply) will necessarily be a good fit elsewhere. Indeed, the most generally applicable lesson is that lines of responsibility and incentives within delegated management arrangements take time to become clear, and it may therefore make sense to build in scope for the contract to be modified, in the light of unfolding experience. That said, if the objective of delegated management is to have a smaller company do a better job at a more localised scale, a pure bulk supply arrangement offers clear commercial imperatives for the delegated manager to enhance efficiency and expand the customer base. It is also essential to consider how expansion and efficiency gains can be oriented to benefit low-income households.

2.2. Facilitating connections to low-income households

In Maputo, WSUP has worked to address technical, policy, financial and logistical barriers to connecting low-income households, through a three-pronged strategy, of enhancing relations between the local service provider AdeM and customers in low-income bairros (actual and potential); advocating around the affordability of connection fees for low-income customers and thereafter supporting AdeM and the asset holder FIPAG to address the cost-recovery gap; and, assisting sector agencies in more effective and efficient implementation of tertiary networks and connections.

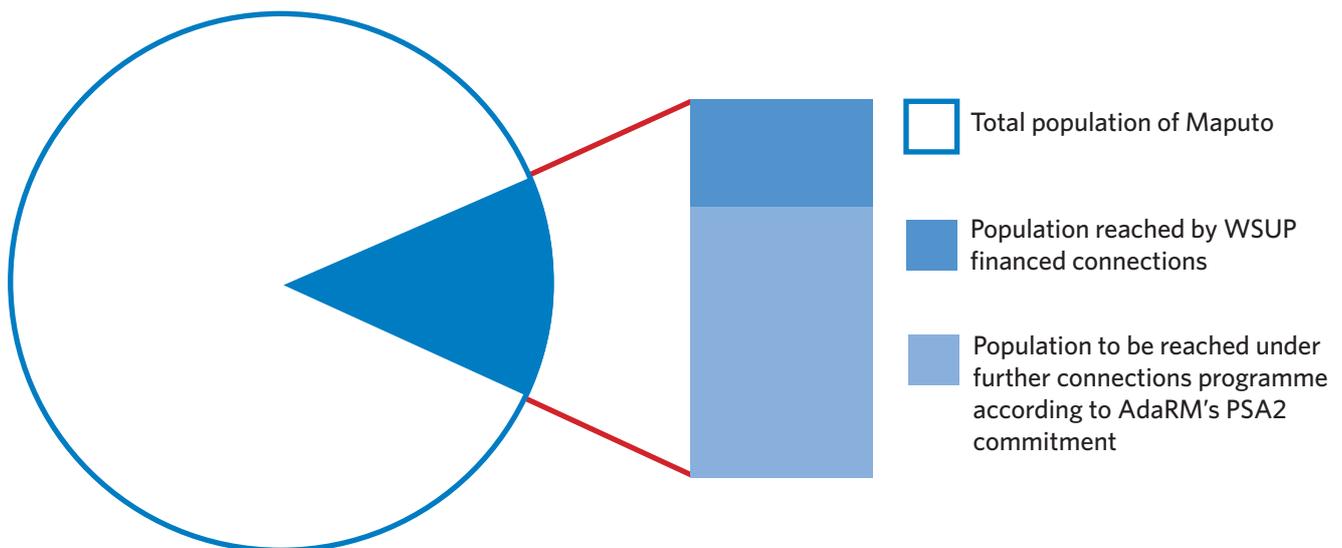
A major achievement was the signing of the second ‘Professional Services Agreement’ (PSA2) between AdeM and WSUP, under which AdeM committed to set up a Low-Income Customer Unit “to help facilitate and coordinate improved water services in the peri urban bairros over the long term”; to undertake a NRW reduction programme (see Section 2.4); and to reach a “minimum target” of 150,000 additional urban poor population with access to networked water services, conditional upon funds from FIPAG.

¹²WSUP & AdeM (2012) Professional Services Agreement between WSUP and AdeM (No.2). Maputo: Water and Sanitation for the Urban Poor and Águas da Região de Maputo.

In return, WSUP committed to provide material and technical support for the NRW reduction programme, as well as advice and capacity building support for the Low-Income Unit.¹²

WSUP's investment to date has provided an estimated 70,000 people with improved water supply through individual and shared household connections across 7 predominantly low-income bairros. From the perspective of scaling, however, the commitment by AdeM to serve an additional 150,000 low-income urban residents is more significant (Figure 5).

Figure 5. WSUP's actual and potential success in contributing to reduction in the household connection service gap in Maputo.



Source
INE (2009),
WSUP & AdeM
(2012)

2.2.1. Supporting enhanced relations between AdeM and customers

The commitment made by the local service provider AdeM in the PSA2 to set up a low-income unit represents a step in an established process of institutional development that has better positioned AdeM to respond to the needs of low-income residents.

A first major advance was achieved following a visit to Manila Water in the Philippines, attended by AdeM's Commercial Director alongside staff from FIPAG; the regulator CRA; the municipal authority CMM and the President of Maputo's Small Private Operators' Association. AdeM was inspired to adopt Manila Water's division of the service area into operational supply zones, each managed with substantial autonomy by an individual senior manager, as well as the professionalisation of meter readers (with greater controls on petty corruption and more responsibility) and the establishment of local payment shops. This decentralised form of management has helped bring AdeM's decision-makers much closer to the particular needs of low-income consumers.

Realising that low connection rates in low-income districts were to some extent due to the administrative difficulties of obtaining a connection, WSUP contracted community-based organisations (CBOs) to undertake door-to-door campaigns providing households with pre-filled application forms. AdeM actively supported the initiative by changing its administrative requirements and improving turnaround times from over 20 days to 7-10 days (WSUP 2011). WSUP staff also note that, for work in Mafalala and Xipamanine, AdeM has visited and consulted with communities and their representatives, particularly around the location of standpipes.

The close support provided directly to households in dealing with administrative hurdles has been complemented by the initiation or revitalisation of "Water and Sanitation Commissions" at district (bairro) level, providing a focal point for discussion

between community representatives (including local officials of the municipal authority CMM) and AdeM and other agencies as they extend the network.

2.2.2. Tackling affordability and cost recovery in tandem

When considering scale, there are two principal dimensions to financial viability which are often perceived as being in tension, but which can in fact be mutually reinforcing. Firstly, expanding networked services requires that the costs are affordable to all, including low-income customers. As utility water tariffs for consumption are often lower than the cost of water from small independent providers, the principal concern here is the cost of connections. Secondly, in order to expand services the provider needs to be able to recover its costs, particularly for capital intensive extension of the network. It is widely accepted that utilities in developing countries will continue to need a mix of finance to meet capital costs, including international concessionary finance (OECD 2009). However, such subsidies can be targeted to poor households to help make connections more affordable, thereby increasing the number of paying customers and generating revenue. With this in mind, WSUP has made a number of interventions, aiming to balance both affordability and cost recovery needs.

From the perspective of affordability to households, the President of CRA acknowledges WSUP's role as one of the first organisations to raise the issue, and to propose subsidising connections on a pilot basis. In the event, civil disturbance over high living costs provoked a politically motivated reduction in connection fees, from 4,300Mts to 2,000 Mts (meticais). Together with the option to pay a deposit of 650 Mts and the balance in 14 smaller instalments, this has certainly reduced the affordability challenge for those on low incomes. However, the change was applied to all prospective customers, with significant implications for cost recovery by sector agencies. As a result, WSUP commissioned a consultancy to consider the implications of the policy change for FIPAG (ultimately responsible for finding investment funding) and AdeM (required to meet the costs of tertiary network extension and connections, and then to recover the costs from FIPAG, which causes serious cashflow difficulties). The report considered a number of water tariff options which are currently under investigation. In addition, it underlined the importance of securing concessional finance to subsidise the capital costs of connections in the near term, a message used by FIPAG and AdeM to successfully lobby donors for additional funds.

2.2.3. Supporting improved implementation logistics

Extending tertiary networks and providing household connections in peri-urban bairros in Maputo has also presented new challenges from an implementation perspective. AdeM contracts engineering firms to carry out implementation, but must nonetheless plan, procure and supervise the required materials and services. The demonstration activities to date – serving approximately 70,000 low-income customers, with investment finance provided by WSUP – were carried out in a collaborative manner, i.e. as co-implementation. This provided good scope for organisational learning, as was emphasised by several stakeholders consulted for the present report, including the President of the regulatory council CRA.

In the course of co-implementation, WSUP supported AdeM in contract preparation and competitive tendering, as well as in separating out procurement processes for material costs and services. Previously, contractors providing both services and materials were able to renegotiate the overall cost of work to their advantage by citing fluctuations in material costs. Together with the involvement of community members in works supervision, WSUP has helped AdeM achieve quality control and adapt to new challenges as they arise in the course of implementation.

As evidence that AdeM's own internal systems are developing, WSUP has been able to gradually reduce the intensity of the support it provides. For the most recent tertiary extension work, in Mafalala, a joint AdeM-FIPAG committee approved project and procurement documents prepared by AdeM, and evaluated bids. WSUP staff

report that AdeM is adopting more robust procurement arrangements outside of the bairros where it is co-implementing, though the utility is still obliged to follow national guidelines at the same time.

2.2.4. Key lesson: Facilitating connections to low-income households

WSUP's rationale for increasing household connections in low-income areas is to provide households with a cheaper and more convenient form of service, while also helping the service provider to increase its customer base and prospects for cost recovery. The example from Maputo demonstrates that, to overcome the prevailing pattern whereby connections are unaffordable for the poor, while service providers concentrate network expansion on high-income areas, supporting agencies will need to engage simultaneously on several different levels. In Maputo, efforts have been made to engage with three different constituencies: low-income communities themselves (through the customer liaison work carried out via local CBOs); policy-makers and senior management (via the lobbying and technical support around connection fees); and, operational and engineering cadres within the Local Service Providers (through co-implementation of the expansion programmes).

2.3. Supporting development and management of community infrastructure

In Tana WSUP has focused on water kiosks for low-income residents. WSUP funded the rehabilitation and construction of kiosks in pilot areas in both the central commune (CUA) and peri-urban communes, and established Water User Associations (WUAs) to manage and maintain them. The kiosk programme was intended to demonstrate that community infrastructure can be operated, and ideally built, on a cost-recovering basis through user payments. WSUP adopted a policy of cost recovery for all its kiosks, with users charged for water and WUAs responsible for collecting payments and paying bills issued by the utility (JIRAMA). Previously many public standpipes had provided water for free with the cost borne by the commune, but in practice non-payment was frequent, while reporting by WUAs was sporadic and unreliable. This meant that standpipes represented a cost for communes and a risk for JIRAMA, disincentivising scale out. As well as training WUAs, WSUP helped to strengthen WUA management systems at commune level, and also worked with the utility (JIRAMA) to develop new approaches for connection and commercial management of water kiosks.

2.3.1. Strengthening WUA management and cost recovery

WSUP and partners (including CARE) trained and supported WUAs in efficient management and collection of user payments, and also worked with the Bureau Municipal d'Hygiène (BMH) of the Central Commune Urbaine d'Antananarivo (CUA) to develop new management and supervision arrangements for WSUP infrastructure. This included clearer technical and financial reporting formats for WUAs, new monitoring forms for site visits, and a computerised database. With WSUP/CARE support, the BMH established WUA platforms at arrondissement level (administrative sub-divisions of the CUA) for easier communication. Together these changes have increased the accountability of WUAs and also enabled them to access CUA support quickly to resolve technical or institutional issues.

BMH is now applying a cost-recovery policy to 60% of the 900 standpipes in the CUA, a huge increase from 5% several years ago. Prospects for the financial viability of kiosks are very good in the CUA, which has a dense existing water supply network: 86% of WSUP kiosks in this central area are projected to recover capital costs, connection charges and O&M costs within ten years, and two-thirds within five years.

The BMH is now taking a leading role in extending communal infrastructure on a financially viable basis, and is able to manage and support WUAs effectively. It is working to harmonise management approaches across all WUAs in the CUA, and has issued a scale-up strategy for WASH infrastructure including plans for 1700 new kiosks to provide universal access to water in the CUA. This strategy represents new leadership and confidence in the BMH, and can be seen as a call to action

for partners in the sector. The ongoing programme of support and capacity building, provided by WSUP and CARE, has made a substantial contribution to enabling the BMH to take this role. WSUP's capacity support has now evolved from operational support to a focus on important functions for scale-up: fundraising, monitoring and strategic planning.

In the peri-urban communes where WSUP has supported infrastructure construction, Commune Development Committees (CDDs) received capacity development support from WSUP and partners to manage WUAs on behalf of the commune administration. These CDDs are now generally able to monitor WUAs effectively, and have also encouraged WUAs to rehabilitate and extend infrastructure (using customer revenues) and helped them to negotiate with the utility JIRAMA when needed. Operational cost recovery is viable in the peri-urban areas, and overall 95% of WSUP kiosks are recovering O&M costs with many generating additional revenue which can be reinvested in improvements. However, the high connection costs in peri-urban areas far from the existing network represent a significant up-front cost for communes, and less than half of peri-urban kiosks are expected to recover full costs within ten years. Until JIRAMA is able to finance network expansion and intensification, connection costs may be the prime constraint for scale-up of kiosks in these communes.

2.3.2. Supporting the utility to connect and manage community infrastructure

WSUP has also worked with the utility (JIRAMA) to develop new approaches for connection and commercial management of water kiosks and washblocks. WSUP's lobbying efforts, combined with parallel support to reduce non-revenue water and strengthen business planning, enabled the utility to lift a freeze on connections and supply the kiosks constructed by WSUP. The cost recovery policy applied to kiosks along with improved revenue collection, financial management and accountability of WUAs has encouraged JIRAMA to view kiosks as a viable service delivery model.

WSUP has also supported JIRAMA to streamline community infrastructure connections by establishing a dedicated connection service, and over the period covered in this report, connection times fell to a maximum of 2-3 months (compared with 4-9 months for private connections). WSUP also supported JIRAMA to develop and implement a new database to track consumption, billing and payments by WUAs. As a result of all these developments, disputes with WUAs have been reduced and JIRAMA is more able and willing to help WUAs when any problems arise. Relations with the CUA have also improved.

In terms of scale-up, in 2009 JIRAMA adopted a policy to prioritise the connection of kiosks over private households. This reflects JIRAMA's sense of its mission to extend services to a maximum number of urban residents and, with WSUP's support, helped them to put this into practice on a financially viable basis. Financial viability is critical for any utility, but the political crisis in Madagascar made financial concerns particularly acute for JIRAMA. From 2007 to 2011 the proportion of water sales to kiosks or standpipes increased from 13% to 19%, and one of the headline objectives in the JIRAMA 2011 General Policy is to "promote paying standpipes". JIRAMA believes that kiosks make good business sense as well as benefiting low-income populations, as they serve large numbers of people and allow JIRAMA to sell much higher volumes of water per connection. JIRAMA staff have expressed interest in building on the structures put in place by WSUP to establish a second dedicated unit for the commercial management of community infrastructure, recognising that this is a distinct and important category of customer.

2.3.3. Key lesson: Supporting development and management of community infrastructure

WSUP's experience in Tana has shown that cost recovery for community water infrastructure is possible, and that clear demonstration of viability can encourage both utilities and municipal authorities to prioritise the scale-up of kiosk provision.

In some cases revenues may be enough to finance upgrades or extension of infrastructure, generating further benefits for low-income populations, but high connection costs in peri-urban areas, far from the existing network, may not be easy to recover from user fees. Formal adoption of a cost recovery policy requires capacity support at all levels to strengthen management and ensure accountability: from scheme managers (in this case Water User Associations), intermediary organisations (whether local government or community organisations, both of which played an important role in supporting WUAs and linking them with commune administrations in Tana), municipal authorities and utilities. This professionalisation at all levels and formalisation of management arrangements has also built trust between these parties, and enabled them to build on WSUP's support and demonstration work with their own initiatives. Engaging municipal authorities in financial projection and monitoring can also build analytical capacity and help the authorities justify further investment in water infrastructure and leverage external finance.

2.4. Assisting utilities to reduce non-revenue water

In both cities, WSUP provided technical support to the local service providers to measure and reduce non-revenue water (NRW). In Tana, NRW reduction was targeted to low-income areas with the aim of increasing the quality of service to residents and/or enabling more people to be served. Hours of service and water sales in targeted areas of Tana have risen, but the extent to which any financial savings translate to increased pro-poor emphasis in overall utility investment plans will depend on higher-level decisions and prioritisations within the utility. In Maputo, WSUP is using its previous success in supporting AdeM on network-wide NRW measurement to leverage targeted pro-poor change. In return for WSUP providing equipment including bulk water meters and technical assistance to reduce NRW (and so enhance income and bulk water availability), AdeM agrees to set up a dedicated Low-Income Unit and explicitly aims to reach an additional 150,000 urban poor population. In addition to any direct pro-poor impact, WSUP's willingness to support the utility on broader concerns such as NRW reduction appears to have enabled it to engage utilities in other pro-poor activities.

2.4.1. Technical and institutional support for NRW reduction

In both Tana and Maputo, the first step was to help service providers better understand the levels of NRW they face, and the nature and implications of the challenge. In both cases this was initially done through international experts contracted to provide training and follow-up support. By focusing on the implications of NRW for the overall viability of the service provider's business, WSUP secured an important entry point to engage with JIRAMA and AdeM's technical cadres and senior management. In Tana, support around NRW was particularly important because of the sudden collapse of planned bulk water development following the withdrawal of European Investment Bank (EIB) finance after the political crisis, which forced JIRAMA to freeze its connections program. In Maputo, a new treatment works at Umbeluzi was expected to increase capacity by around 40%, but losses - including physical (leaks), illegal connections and commercial (unbilled water) - pose a serious constraint on service levels. If NRW were not reduced, AdeM would effectively be losing approximately 67% of production following development of the new treatment works, equating to US\$ 73 million per year in value to the operator (Parker 2011).

In Tana, the expert consultant helped develop the management, technical, and institutional capacity to tackle the NRW challenge. Leakage reduction programmes were undertaken in three pilot peri-urban zones, which suffered particularly acute water shortages: Sabotsy Namena, Alasora and the Western Zone. In these areas, gains were seen in indicators such as service continuity (restored to 24 hours in Sabotsy Namena, and increased from 2 to 6 hours in the Western Zone) and water sales (an additional 13000 m³ sold across the three zones). Most significantly, the Infrastructure Leakage Index (litres per connection per day adjusted for hours of supply, and thus accounting for demand and service continuity) was reduced from 16 to 4.8 in the Western

Zone, bringing JIRAMA into the World Bank A/B category for developing country utilities (World Bank 2006).

Reflecting on the markers of progress for scaling (Section 1.4), JIRAMA appears to have increased its ownership of the programme by initiating an NRW steering team and leakage unit at national level, with a standardised leak reporting approach and city-wide leakage data consolidated in a central database. JIRAMA has also contributed its own financial resources, meeting 30% of the costs of the largest pilot programme (the Western Zone) following demonstrated successes in the other two.

A scale-up plan for the NRW reduction programme has been prepared by JIRAMA, supported by WSUP. Building on this, JIRAMA allocated 11 new staff to leakage detection during 2012, and invested in new equipment for leakage detection and management; it has also established NRW units in six other regional centres outside Tana. JIRAMA allocated US\$ 320,000 to its NRW reduction programme in 2011, and its 2012-2016 five-year action plan envisages further investment in NRW totalling over US\$ 2 million, as well as over US\$ 9 million on asset management (another area in which WSUP provided capacity building). It is not yet clear to what extent JIRAMA will be able to meet these levels of investment from its own budgets, but its intention to extend these approaches is clear. JIRAMA believes that the new systems for monitoring and addressing NRW provide credibility to donors, and is currently in discussion with the World Bank around possible future support for the extension of the programme nationwide.

In terms of material progress in establishing (and reducing) NRW, Maputo has established a baseline, but city-wide NRW remained between 50% and 60% during most of 2011 (AdeM 2011). Nonetheless, successes have included installation of bulk meters at the entrances and exits of the treatment stations and distribution centres, more accurately establishing water production and losses.

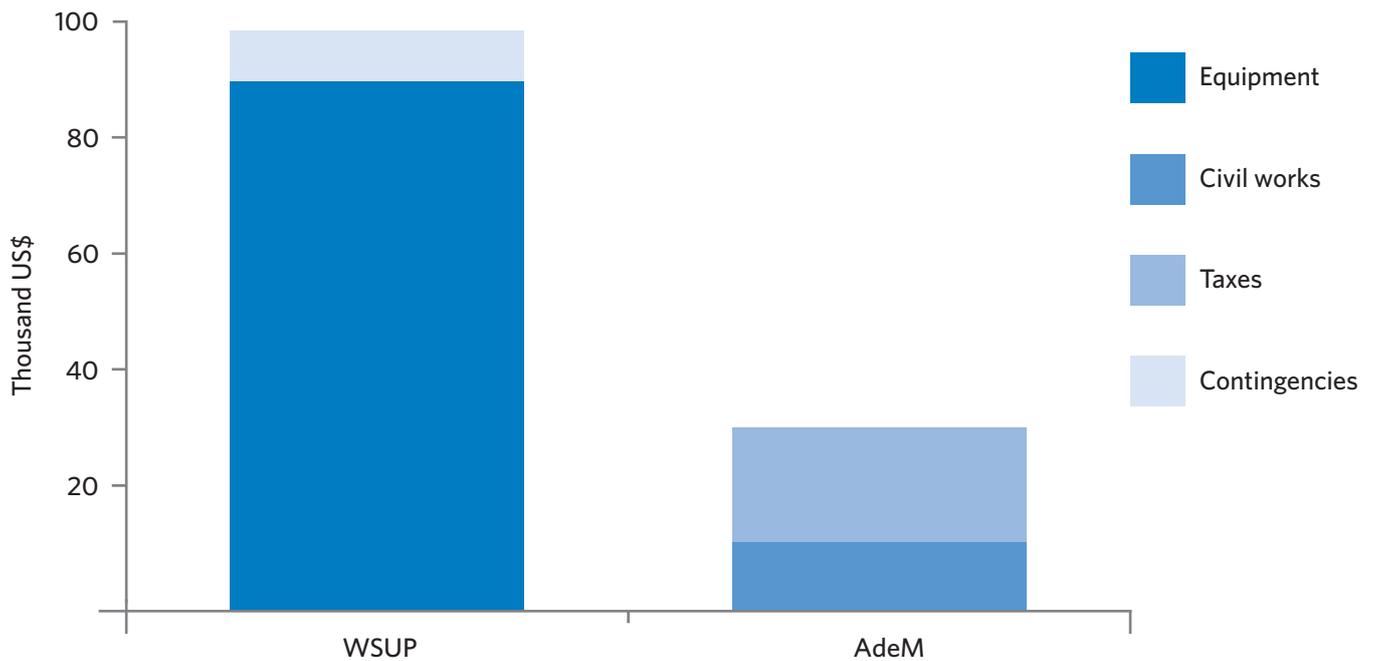
2.4.2. Leveraging improved low-income services with financial and water savings

City-wide improvements in NRW – for example JIRAMA's NRW reduction from 40% in December 2008 to just over 30% in mid-2011, with leakage identification increasing from 200 to 800 per month – are of critical importance to service provider viability. However, WSUP's Pro-Poor NRW intervention strategy aims to go beyond helping the service provider to increase overall viability, to actively ensuring that the gains have "community level impact". In Tana, JIRAMA views its connection programme for communal infrastructure as the most effective way to reach low-income consumers given insufficient water and financial resources for household connections, as well as low levels of household income. JIRAMA attributes recent extension of the network in the Western Zone (an additional 3 km of pipes and installation of 2 booster pumps, at a budgeted cost of US\$ 331,000) in part to the NRW savings already achieved in this zone. JIRAMA envisages further improvements in continuity of supply to communal infrastructure used by low-income consumers.

In Maputo, the gains for low-income areas are mainly prospective rather than already realised, but include a commitment from AdeM under the PSA2 (see Section 2.1) to serve an additional 150,000 low-income population, subject to funds from FIPAG. This comes in return for WSUP's material and capacity-development support for a targeted NRW reduction programme across the Maxaquene supply zone. The approach taken in Maputo is somewhat different from that in Tana, in that the targeted area is not distinctly low-income or peri-urban. The Maxaquene supply zone comprises much of the wealthier cidade de cimento as well as low-income bairros such as Maxaquene A, B and C, where WSUP has helped AdeM extend connections. The supply zone certainly represents a critical area for AdeM to develop and test its NRW reduction capacity, comprising the highest levels of connections and population density anywhere in the city. In effect, the PSA2 indirectly leverages benefits for low-income households, in return for the core-business benefits for AdeM represented by NRW reduction

in the key supply zone of Maxaquene A. While the investments in network expansion and connections are dependent on investment funds being made available by FIPAG, AdeM indicates that it will meet around a quarter of the total costs of the NRW reduction programme, with equipment (principally bulk flow meters and gate valves) funded by WSUP (Fig. 6). Although this has yet to be implemented, the PSA2 is a strong sign that AdeM is following JIRAMA in increasing its ownership of, and contribution to, the Pro-Poor NRW intervention strategy.

Figure 6. Indicative cost share between AdeM and WSUP for NRW reduction programme in Maxaquene Supply Zone.



Source

AdeM (2012); excludes procurement and equipment testing overheads, to be met by AdeM.

2.4.3. Key lesson: Assisting utilities to reduce non-revenue water

WSUP's work on NRW with JIRAMA in Tana and AdeM in Maputo indicates the potential to translate improvements around a core-business concern into specific gains for low-income areas. NRW-based approaches have very wide appeal to utilities, whether they face an urgent shortage of bulk water, or are simply interested in reducing water losses and uncollected revenue. However, in neither case would it appear that an explicit pro-poor link has been made without strong support and encouragement from WSUP. In Tana, the pro-poor link was arguably made easier due to JIRAMA's particular situation. With highly constrained bulk water availability and finance for network expansion, increasing connections to communal infrastructure was the best way to increase the customer base and generate revenues. In Maputo, it has been necessary to specifically agree that NRW reduction should translate into improved and expanded services for poor urban households, via the PSA2. In both instances, there are promising signs across the progress markers (Figure 4), that the LSPs are increasingly able to replicate the pro-poor NRW strategy, as a key contributing factor to scaling up services. As well as resource commitments by the LSPs themselves, institutional structures targeting low-income customers have been put in place in both AdeM and FIPAG, and senior management voice their strong commitment to the programmes.

3. Conclusions: Lessons for scale in water services

3.1. Key lessons for scale in urban water services

Across all four “intervention strategies” reviewed in this report, there has been mixed progress in moving relevant actors and the overall situation to a position where scale-up is possible. We suggest three main prerequisites for achieving scale-up in urban WASH services. These prerequisites underpin an adaptive and intrinsic capacity on the part of domestic actors, which goes beyond simply scaling-out, or blind duplication of service models. These prerequisites are:

- increasing ownership by local actors
- increased finance and capacity commitments from domestic sources
- gradually reducing involvement from support agencies, increasing beneficiaries and the evolution of internal systems to sustain services and adapt to changing circumstances.

Considering the urban water experience from Tana and Maputo, it is clear that the subsector has made considerable progress a) in developing models which both meet the needs of low-income populations and which are viable from the perspective of service providers, and b) in building the necessary capacities to manage these models. Challenges remain, however, in particular around:

- achieving high-level policy and budgetary commitments specifically to improve services for low-income populations
- sustaining and deepening capacity gains made to date so that local service providers can truly sustain and scale up new approaches.

Nevertheless, WSUP’s experience indicates a number of key insights about how an external agency can incrementally enhance the prospects for scale-up and help to build momentum for change. These are highlighted in Box 3.

Box 3: Key insights - how can an external agency enhance the prospects for urban water supply scale-up?

- Clarify expectations and incentives, but don’t expect them to stay the same.
- Work with and through different constituencies, making an effort to “speak their language”.
- Focus on financial viability for all partners, which may require both policy change and capacity/institutional development to become a reality.
- Support core utility functions if these constrain prospects for scale-up, but draw an explicit link with improvements in pro-poor services to ensure pro-poor impact.
- Consider investing in infrastructure to “get through the door” and to enable learning from co-implementation of new models.
- Be adaptive in your own activities, as this not only improves outcomes but can help build the adaptive capacity of service providers.
- Pay attention to the nature and levels of demand when designing water services, not only in sanitation.
- Engage in capacity development on a long-term basis, as scale-up is a long-term endeavour, and look for opportunities to leverage further capacity support within the system.

In what follows, we unpack these insights in a little more detail.

- 1) ***Clarify expectations and incentives, but don't expect them to stay the same.*** – The experience of developing delegated management arrangements in Maputo has shown that engaging smaller enterprises to fulfil specific aspects of service provision is possible, but that clarity of contractual relations is essential, and may take time to evolve. Mutual expectations and incentives must be as clear as possible from the start, and sufficient flexibility built in so these can adjust over time. A strategy for scale-up which does not consider the reasons why different actors will support or obstruct progress, or which underestimates the fact that these motives can change, is unlikely to lead to real transformation.
- 2) ***Work with and through different constituencies, making an effort to “speak their language”.*** – Prospects for building genuinely adaptive systems for scale-up, across different stakeholders and institutions, are enhanced if several strategies are used at once. In WSUP's experience, this has required working simultaneously through or with low-income communities, technical cadres within Local Service Providers (LSPs), and institutions and individuals holding the relevant sector “policy levers” and “purse-strings” (including government, asset holders, and regulators). This has been achieved in a large part by drawing in allies that can speak convincingly to different constituencies (from community-based organisations, to consultants with engineering or financial planning backgrounds), underpinned by the diverse skill-sets within WSUP's own staff.
- 3) ***Focus on financial viability for all partners, which may require both policy change and capacity/institutional development to become a reality.*** – The example of supporting viable community-managed water infrastructure in Tana showed the central importance of financial viability, in establishing the credibility of any intervention and its prospects for scale-up. At the same time it showed that policies, for example with respect to cost-recovery, are a useful starting point. However, WSUP's experience demonstrates that prolonged support is necessary to build capacity, and with it accountability and trust, within and between community management entities, intermediary organisations and high-level sector institutions such as utilities or municipalities.
- 4) ***Support core utility functions if these constrain prospects for scale-up, but draw an explicit link with improvements in pro-poor services to ensure pro-poor impact.*** – Work on the core-business concern of NRW in Tana and Maputo has been an important way to engage the LSPs, AdeM and JIRAMA, as well as supporting institutions. But the two cities illustrate different approaches to linking broad operational gains, that are essential for sustainable scale-up, and specifically pro-poor results. Where bulk water and financial constraints are absolute, as in Tana, NRW reduction may only free up sufficient resources for standposts for the benefit of low-income households. In Maputo the scope for household connections, which conventionally are more likely to be accessed by wealthier households, has meant that specific undertakings to serve low-income households have been required (as under the PSA2).
- 5) ***Consider investing in infrastructure to “get through the door” and to enable learning from co-implementation of new models.*** – In Maputo, WSUP's financial investment in tertiary network expansion and connections has certainly helped it secure the attention of AdeM. But perhaps more important has been the close co-implementation, whereby planning, procurement and supervision have been carried out in partnerships between the technical experts in WSUP and AdeM. This has contributed to a learning process for both parties, as the challenges of providing networked water services in low-income areas were encountered and overcome. In Tana, the construction of new water kiosks has provided a valuable starting

point for WSUP and the BMH to trial a cost-recovery policy and new management approach. Likewise, NRW reduction appears to have won the backing of both utilities, as an uncontroversial and proven way to improve business viability. JIRAMA's commitment to meet 30% of the NRW reduction programme in Tana's Western Zone is now matched by AdeM's intention to meet about 25% of the costs of the programme in the Maxaquene supply zone.

- 6) Be adaptive in your own activities, as this not only improves outcomes but can help build the adaptive capacity of service providers.** – WSUP has shown itself capable of responding to change in the course of its work: for example in moving from promoting a reduction in household connection charges in Maputo, to supporting FIPAG and AdeM to meet the cost recovery gap arising when connection charges were in fact reduced. FIPAG and AdeM's effort to secure additional investment funding from ADF illustrates that adaptive capacity on the part of supporting agencies can often work synergistically with that of service providers. WSUP's emphasis on monitoring and learning from its activities has enabled some local service providers (such as the BMH in Tana) to build capacity in these areas, and has promoted a reflective and adaptive way of working.
- 7) Pay attention to the nature and levels of demand when designing water services, not only in sanitation.** – While more is often made of the role of demand in scale-up of sanitation services, water services must also respond to patterns of consumer preference. This is, for example, recognised by BMH in Tana, which has been seeking to account for demand, as well as land tenure and other issues, in its siting of community infrastructure, so as to avoid kiosks having insufficient sales volumes to cover their costs.
- 8) Engage in capacity development on a long-term basis, as scale-up is a long-term endeavour, and look for opportunities to leverage further capacity support within the system.** – In all four intervention strategies, WSUP appears unable, as yet, to entirely scale back its inputs around specific models, in favour of broader support to sustain system-level capacity (one of the progress markers for replication indicated in Figure 4). This is, it can be argued, a result of the long-term nature of change processes. However, the focus of capacity development over time has typically shifted from operational support to more strategic engagement around planning, monitoring and fundraising capacities.

The above lessons represent an attempt to distil a substantial body of work. While WSUP has not yet fully reached the replication step of its process model for scale-up via any of the intervention strategies described in Section 2, there are a number of very promising signs that the model will work. Looking ahead to WSUP's own programmes, and with wider relevance to other agencies with similar goals, two closing points can be made. First, that successes ascribed above to WSUP must equally be shared with committed personnel within service providers, communities and partner organisations with which it has worked: identifying such individuals, and building relationships with them, is paramount. Second, that understanding of the equity of scale-up success can, and must, be developed further – while WSUP has used geographical and service-level targeting to reach low-income households, the exact extent to which the poorest are benefiting from scale-up needs to be established more definitively.

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