

Access to Water and Sanitation in Sub-Saharan Africa



Review of Sector Reforms and Investments,
Key Findings to Inform Future Support to Sector Development

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The research for this study was carried out by a team of independent consultants. The views of the author do not necessarily reflect the views of GIZ.

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This review was commissioned by GIZ at a time when the water sector in Africa was at the crossroads. Having committed roughly EUR 1.6 billion in support over the past ten years, the German Federal Ministry for Economic Cooperation and Development (BMZ) published a new water strategy in 2017. Realizing the human rights to water and sanitation, based on the principle of 'leaving no one behind' (LNOB) and the SDGs, became a central goal of German Development Cooperation. In view of international commitments to greater aid effectiveness it was timely for one of the major donors to the Sub-Saharan water sector to review its implementation strategies.

During the MDG period, many countries in the region had implemented far-reaching water sector reforms, some with German support. By 2015, the number of people living in towns and cities who were receiving piped water services had increased significantly. Progress was outpaced by rapid urbanisation, however, and access to piped water declined from 63% to 56% in the region, and the MDG for water was missed. While Africa's urban population and hence demand for water continues to grow at unprecedented levels, the bar has been raised even higher under the SDG framework: governments now aim for universal access to "safely managed water services" with higher service levels.

In line with the principles set out in the Paris-Accra-Busan Declarations - ownership, harmonisation of development partners, results, and mutual accountability - the review covers the water sector reforms in Burkina Faso, Kenya, Tanzania, Uganda and Zambia. It draws evidence-based lessons with respect to the effectiveness of the complex reforms in these countries and seeks to provide recommendations regarding the effective implementation of the BMZ strategy by looking at two critical questions: How can the achievement of high levels of coverage with public water services be accelerated? And: Do current approaches of implementation (modes of delivery) need to be adjusted, and if so, where and how? The review consists of two documents. This synthesis report (Part I) built on separate country case studies covering the five long-standing partner countries of German Cooperation and a separate document (Part II) where the key narratives emerging from the analysis in the synthesis report are elaborated.

Overall, the review conveys a positive message: the experience from the five African countries shows that sector reforms contribute to reaching a high level of access to piped water. Even in countries with a challenging governance context, high poverty levels and water scarcity, favorable framework conditions create the opportunity for commercial utilities to thrive and become eligible for commercial loans, whilst enabling pro-poor service extensions in urban areas. There are top performing utilities in each of the five countries covering their operational costs (OCCR >1) and achieving high coverage levels (ca. 90%). Some important findings may deserve greater attention from sector institutions, development partners as well as German Cooperation in future:

-  The potential for self-financing of the sector in poor countries is not yet fully exploited. In order to increase the effectiveness and levels of investment, the overall efficacy of the financing framework should be enhanced. More specifically, this requires improving professionalism, transparency and accountability of sector financing. Annual investments of US\$ 10 per person living in urban areas in urban water infrastructure (backbone and last mile) appear to be a minimum amount to achieve substantial coverage increases.
-  Good governance at the utility level is a crucial precondition for higher utility and sector performance. A more competitive allocation of financing can set incentives for governance, adequate tariff levels and performance improvements. This would necessitate a more flexible and concerted approach of development partners.
-  Accelerating access to piped water for underserved people requires more efficient use of scarce grant finance to subsidize expansion of services to the poor. Existing pro-poor policies need to be translated into practice through implementation concepts for low-cost technologies and dedicated financing mechanisms. 10% to 15% of sector investments should be earmarked for the "last mile", i.e. service extensions into underserved areas.
-  Sector information systems need to be improved in order to provide a more accurate picture of the current status of services and access trends. Regulatory authorities play a key role in improving data and reporting.

✚ With respect to sanitation, declining coverage of sewerage services emphasizes the need to accelerate more appropriate on-site sanitation services. This will require more coherent frameworks for the entire sanitation chain, concepts for sludge management, increased investment and improved monitoring.

In addition, the research process and discussions of earlier drafts of the reports gave rise to a number of new questions and thematic areas for investigation which were beyond the scope of the review:

Due to rapid urbanisation, the number of people in urban areas without access to water and sanitation services continues to rise. In the conclusions of the report, the relevance of stronger pro-poor orientation of service providers, financing institutions and regulators for reaching universal access might still be underestimated. A more detailed analysis of the impact of pro-poor instruments on the improvement of access in some of the surveyed countries is recommended.

The study has shown that access figures from sector information systems can deviate considerably and irreconcilably from those derived from JMP household surveys. Both monitoring systems have weaknesses in certain areas. In the context of the requirements of human rights to water and sanitation for instance, neighborhood resales and informal service provision should not be considered access. In some countries deviations resulted from different definitions of “urban areas” used in sector monitoring and by JMP. For the purposes of this study, conclusions were drawn from the data as it was reported. No attempts were made to adjust the data as this would require more in-depth research.

There is a need to differentiate between the performance of a (national) utility and the performance of the water sector as a whole to better validate the resilience of the sector and to capture the fiscal risks for governments generated by the sector. The issue here is the impact of the water sector on the debt of the country as a whole. Country debt results when water and sanitation infrastructure is funded through loans taken out by the government, but not repaid through revenues generated from the use of this infrastructure.

Good governance is difficult to measure and its complexity extends beyond the scope of this study. For instance, while a high degree of autonomy of utility management could be an indication of good governance, it could equally create new governance challenges. There is a risk that powerful utilities could become “a state within the state”, working against necessary reform steps, regulation or transparency in the sector.

As GIZ seeks to engage in dialogue with national sector institutions, development partners and the public in order to validate the findings and recommendations of the review, the members of the Steering Committee of the study hope that it will inform the decisions that are critical for continued progress towards universal coverage.

GIZ Competence Center Water, Wastewater, Solid Waste

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ACRONYMS

AMCOW	African Ministers' Council on Water
BMZ	Federal Ministry of Economic Cooperation and Development (Germany)
CEO	Chief Executive Officer
DAWASA	Dar es Salaam Water and Sewerage Authority
DAWASCO	Dar es Salaam Water and Sewerage Corporation
DTF	Devolution Trust Fund (Zambia)
EWURA	Energy and Water Utilities Regulatory Authority (Tanzania)
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
JMP	Joint Monitoring Program
KCCA	Kampala Capital City Authority
IBNET	International Benchmarking Network for Water and Sanitation Utilities
kl	kiloliters (one thousand liters)
lcd	liters per person per day
LNOB	Leave no one behind
MDG	Millennium Development Goal
MPI	Multi-dimensional Poverty Index
NRW	Non-revenue water
NWASCO	National Water Supply and Sanitation Council (Zambia)
NWSC	National Water and Sewerage Corporation (Uganda)
OCCR	Operating cost coverage ratio
ONEA	L'Office national de l'eau et de l'assainissement (Burkina Faso)
PPP	Purchasing power parity
REGIDESO	Régie de distribution d'eau de la République Démocratique du Congo (DRC)
SDE	Senegalese Des Eaux (Senegal)
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
UN	United Nations
Unicef	United Nations Children's Fund
UPC	Urban Projects Concept (Kenya)
VIP	Ventilated Improved Pit Latrine
WASREB	Water Services Regulatory Board (Kenya)
WGI	World Governance Indicators
WHO	World Health Organisation
WSP	World Bank Water and Sanitation Program
WSP	Water and sanitation service provider (Kenya)
WSDF	Water and Sanitation Development Facility (Uganda)
WSDP	Water Sector Development Program (Tanzania)
WSSA	Water Supply and Sanitation Authorities (Tanzania)
WSTF	Water Sector Trust Fund (Kenya)

EXECUTIVE SUMMARY

The situation of water and sanitation in Sub-Saharan Africa is becoming increasingly precarious. Ongoing unprecedented urbanisation and steady economic growth have led to soaring demand while climate change is putting a squeeze on raw water availability. The urban population is expected to increase fourfold, to 1.3 billion, by 2050. Only 56% of city-dwellers have access to piped water, down from 67% in 2003, and just 11% to a sewer connection. Failure to address the service provision challenge in the urban setting risks threatening social stability and economic development, and may cause further migration within and out of Africa.

Although the challenges are formidable, there is good news. The experience of water sector reforms in Africa shows that it is possible to reach a high level of access in urban areas that satisfies the requirements of human rights, even in poor countries. Water sector reforms have successfully slowed the decline in water coverage.

This independent review, commissioned by GIZ, examines the outcomes of urban water sector reforms and investments in Burkina Faso, Kenya, Tanzania, Uganda and Zambia from 2005 to 2015. It seeks to establish the determining factors for improvements in sector performance and coverage in the urban setting by analysing four dimensions of sector development: 1) financing, 2) pro-poor orientation, 3) sector governance, and 4) sector data quality and reporting. The review offers useful lessons that are applicable in the wider Sub-Saharan Africa context.

Elements of water sector reforms

Reforms in the five countries started in the 1990s, and it took between five and ten years to achieve the first substantial results. Reforms were used as an entry point for the restructuring of two prominent public national water service providers, ONEA in Burkina Faso and NWSC in Uganda. In the other three countries reforms started with the design of a new institutional framework, which included the creation of regulatory authorities. Key elements of every reform comprised the professionalisation of utilities (corporatisation), the introduction of regulatory tools, and - in some cases - the professionalisation of funds mobilisation and investment management. The reforms were driven by four objectives: (i) to increase **access** to water and sanitation by improving utility performance, (ii) to reach an operating **cost coverage** ratio (OCCR)¹ of larger than 1.0 for the utilities, (iii) to improve **maintenance** and (iv) to increase **investments** and the efficient use of funds.

Outcomes of water sector reforms

With respect to financial performance and access, the reform efforts in the five countries show mixed results. Utilities such as Nyeri (Kenya), ONEA and NWSC with an OCCR in the range of 1.2-1.4 achieved a higher access rate (78%-91%). Burkina Faso reached the highest level of urban per capita investment (>2.5 times the investment level per urban resident in Zambia), followed by Uganda. It should be noted that Burkina Faso and Uganda are the two poorest of the five countries.

Financing: The review indicates that it is possible for well-performing utilities to achieve both the social goal of greatly increased access and the commercial goal of OCCR larger than 1.0. The following rules of thumb summarize other findings: (i) an average tariff of less than **US\$ 1 per m³** (5 US cents for 50 liters) is certainly too low to meet today's challenges in the sector. (ii) Investments of approx. **US\$ 10 per person living in urban areas per year for water** appear to be a minimum requirement if a substantial increase in urban coverage is to be achieved. Countries able to ensure the effective use of investments in the sector seem to be more likely to attract financing from development partners than countries who have less effective conditions.

1) OCCR is defined as the ratio of billing revenue to operating costs. For example, an OCCR of 1.25 indicates that 20% of revenues could be set aside as a contribution to investments ($25/(100+25)$).

Pro-poor orientation: Despite considerable investments, access in Tanzania lags behind other countries, mainly because of an inadequate pro-poor orientation of the investment program. Better-performing utilities elsewhere are scaling up low-cost technology such as water kiosks, as successfully promoted via the pro-poor basket funds in Kenya and Zambia². Generally, countries with a higher share of public outlets have achieved higher coverage.

Sector governance: The analysis indicates that corporate **governance is the key differentiating factor** between well-performing and poorly performing utilities, and it appears to be **crucial for securing financial sustainability over a longer period**. In the past, development partners did not pay enough attention to governance, across the sector and particularly at the utility level. An enabling framework and regulation help to improve water governance but need to be combined with good leadership. Good governance also embraces accountability and requires audits (externally verified) and sound information systems.

According to the review there is **no single preferred institutional structure**. Success is possible for national, regional or local level utilities, with or without a regulator and with or without a national professional financing/investment agency. However, an independent regulator has an important role to play where operations have been decentralised. Where only one national utility exists, regulatory functions can be performed through other arrangements and actors.

Sector data and reporting: Good sector information systems matter: without validated data on access to services it is difficult to measure improvements and target investments. Despite substantial improvements in sector reporting, more regular surveys are needed to verify and improve the currently available data.

Implications for consideration by development partners

Good governance: Financing agencies should incentivise credible commitments to **good governance** and improved performance by allocating funds more competitively. This implies that the development partners' investment strategies and modes of delivery need to be adjusted and requires better coordination between financial and technical cooperation. Clustering of small providers into fewer and larger providers around well-performing utilities should be promoted in order to expand the reach of good governance.

Financing and Tariffs: The framework conditions for sector financing including **professional and autonomous institutions responsible for sector investment** on national level should be strengthened (through technical cooperation). The target operating cost-coverage ratio should be in the range of 1.2-1.5. Inadequately low tariff levels are a major reason for poor service and low coverage and hurt the poor the most. Tariff indexing (Uganda) or multi-stakeholder supervision mechanisms (Burkina Faso) can prevent persistent political interference.

Pro-poor orientation: Scarce grant funding and subsidies should be targeted towards extending services to the poor. The **subsidy model should be redesigned** in a way that makes it both more progressive (benefiting those without any service first) and sustainable. Backbone infrastructure should be financed through loans and go hand in hand with socially balanced tariff increases for consumers with access to a connection. Splitting sector funding into 10-15% for last mile (grants targeted at the underserved poor and low-cost technology) and 85-90% for first mile investments (loans for the main system) is recommended.

Sector reporting: Development partners need to work with governments, regulators and utilities on consistent **reporting systems that cover all urban areas**.

2) Water Services Trust Fund (Kenya) and Devolution Trust Fund (Zambia)

1 INTRODUCTION

1.1 Study context

In Sub-Saharan Africa, 42% of people are without a basic water supply, and 72% without basic sanitation.³ At the same time, Africa is urbanising rapidly – its urban population is expected to increase from 345 million in 2014 to 1.3 billion people by 2050.⁴ Africa is the only region, where urbanisation is not accompanied by a sufficient rate of economic growth. Consequently, **there is a large and growing infrastructure and financing gap. Investments will have to be increased by a multiple of existing amounts to meet the Sustainable Development Goals for poverty reduction and water and sanitation in Sub-Saharan Africa.**⁵

New opportunities and increased risks

Africa is likely to undergo a significant transformation over the next thirty years.⁶ There are significant opportunities for economic growth. But in order to achieve this potential, the transition to a predominantly urban population will need to be skilfully managed.⁷ This will require improvements in education, health, water, sanitation and other services. **Failure to address these challenges poses significant risks, including increased pressures on migration out of Africa, undernourishment and deteriorating political stability**⁸. Water has already been identified by the World Economic Forum as one of the highest global risks.⁹ The economic costs in terms of limited access and lost economic opportunities are very significant.¹⁰

There is good news

Although the challenges are great, there is good news. **The experience with water sector reforms in Africa over the last twenty years has shown that it is possible for well-managed urban water utilities to be created and sustained in challenging circumstances in low-income countries. And experience has also shown that these utilities are able to extend the piped water network to the large majority of people living in the cities they serve, even in the context of rapid population growth, and for the investments to be financeable.**¹¹

1.2 Purpose and methodology

This study analyses the outcomes of urban water sector reforms and investments in Burkina Faso, Kenya, Tanzania, Uganda and Zambia in the period 2005 to 2015 in terms of access to drinking water, and to a limited extent, sanitation/sewerage. The study seeks to establish the determining factors of sector performance and coverage increases in urban underserved areas by analysing four dimensions of sector development: 1) financing, 2) pro-poor orientation, 3) sector governance, and 4) sector data and reporting.

3) Progress on Drinking Water, Sanitation and Hygiene 2017 (Joint Monitoring Program, WHO, Unicef, 2017)

4) World Urbanisation Prospects 2014 (United Nations, 2014)

5) Financing water, Investing in sustainable growth (OECD, 2018)

6) Rethinking Africa's structural transformation: The rise of new industries. (John Page, www.brookings.edu/research/rethinking-africas-structural-transformation, January 11, 2018)

7) Op-Ed: The Future of African Economic Growth (Mills and Herbst, 12 March 2018, Daily Maverick)

8) African migrants flock to Europe, whatever the risk (www.enca.com/africa/african-migrants-to-europe-whatever-the-risk, June 2017)

9) www.weforum.org/agenda/2018/01/why-the-answer-to-water-insecurity-is-working-together (January 2018)

10) "18 African countries lose around US\$5.5 billion every year due to poor sanitation, with annual economic losses between 1% and 2.5% of GDP" (Economic Impacts of Poor Sanitation in Africa, WSP World Bank, 2012)

11) Heymans et al (2016).

The study tests five hypotheses:

The existence of country financing strategies and mechanisms matters: The impact of a million dollars invested in a system – in terms of additional persons served – is higher, if both country financing strategies and mechanisms and aid modalities and incentives set by donors reinforce each other and aim at the expansion of service coverage in underserved urban areas (compared with situations, where either country financing strategies and mechanisms are not in place or, in cases where they are in place, where they are not reinforced by aid modalities and incentives set by donors).

Pro-poor orientation of service providers matters: Water service providers and regulatory systems with a clear pro-poor orientation are able to provide more previously underserved people with access to services per million dollars invested in a system than water utilities without such an orientation.

Box 1: Study methodology and inferences

Daniel Kahneman, a psychologist who won the Nobel Prize in Economics for systematically exploring human thinking, concluded that our decision making is much less rational than we like to think and there is often little we can do about this, except to become more aware of how these biases work (Kahneman 2011). Development professionals are not immune from these biases (World Bank 2015). This text box provides a note of caution on the methodology of the study and the validity of inferences that can be drawn from the study findings.

Complexity and the law of small numbers. The factors that influence water sector outcomes and how these interact to contribute towards success, however measured, are complex. The terms of reference identified 27 factors to be qualitatively assessed with a view to validating five study hypotheses, based on a sample of five country case studies. The sample size is too small, and the number of parameters too large, to be able to draw scientifically proven conclusions with respect to any apparent relationship between the qualitative assessment and sector outcomes.

Confirmation bias and sunk costs. Confirmation bias refers to giving undue weight to information in order to support a previously held belief and to the discounting of information that does not support those previously held beliefs. It arises when individuals restrict their attention to a single hypothesis and fail to actively consider alternatives. Sunk costs bias refers to the tendency to continue once investment

into an initiative has already been made because to stop an initiative might require an acknowledgement that past efforts and resources have been wasted (World Bank 2015). The BMZ has invested considerable resources over a long period of time supporting water sector reforms in African countries based on a set of premises closely aligned to the study hypotheses. The danger of confirmation and sunk cost biases are thus very real for this study. These biases also apply to the author.

A problem of timing. The reforms commenced at different times, and proceeded in different sequences and not at the same pace. The study took a pragmatic approach, primarily related to the availability of data, in defining a single common period (2005–2015) to analyse the sector reforms, investments and outcomes across the countries.

The absence of a counter-factual There is no counter-factual – what would have happened without reforms?

Implications. In this light, great caution needs to be exercised in making any inferences from the study findings. Rather, the **findings are used to provide pointers of possible explanatory narratives that could be explored further.** In the view of the author, the value of the study lies in the narratives emerging from the study findings. Do these tell a coherent and convincing story, and are any of these narratives worth pursuing? Are there compelling counter narratives and what might these mean?

Commercialisation and professionalisation of public water services have accelerated access in terms of social inclusion and equity in two ways: (i) by generating more domestic resources through increased efficiencies and (ii) by leveraging additional funding from other sources like government and donors.

Low levels of political interference and corruption matter: The more political interference with decisions and operations of autonomous sector institutions with the responsibility for financing, regulation and service delivery is kept at bay and the more corruption is prevented, the better is the performance of the sector in terms of water and sanitation coverage.

Good sector information systems matter: Fragile and patchy sector information systems, poor quality and insufficient verification of sector data and reports result in poor sector investments allocation choices and in misleading service coverage reporting.

This report is based on the five separate case study documents that have been prepared separately for each country. The framework for the analysis is from the GIZ study terms of reference with some minor modifications agreed during the project inception phase. Methodology limitations are discussed in Box 1.

The country data is reported in the following order: Burkina Faso, Uganda, Kenya, Zambia and Tanzania, following the order of quantitative performance set out in Table 17. The criteria used in the qualitative assessments are given in Annex 2. Limitations with respect to population data are discussed in Box 2.

1.3 Country case study contexts

Economy

All five countries experienced economic growth over the period, increasing GDP per capita by a factor of between 1.3 and 1.45. Burkina Faso and Uganda have a lower GDP per capita compared to the others, and Zambia the highest (Figure 1). Burkina Faso, Tanzania and Uganda are classified as low-income and Kenya and Zambia as lower-middle income countries by the World Bank.¹²

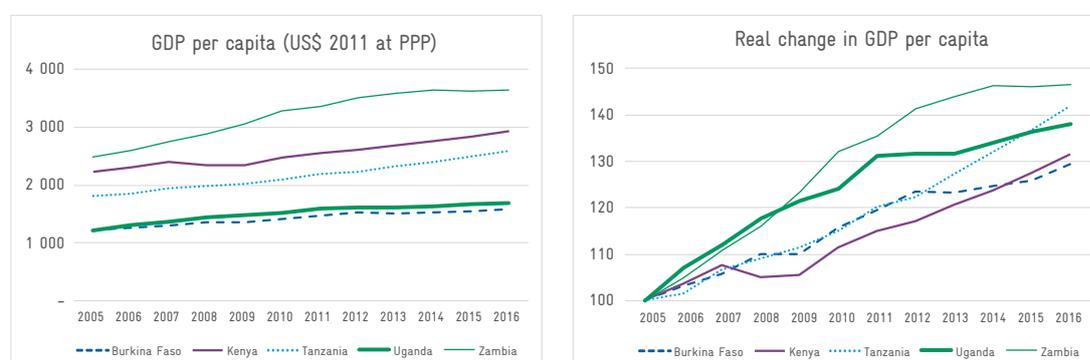


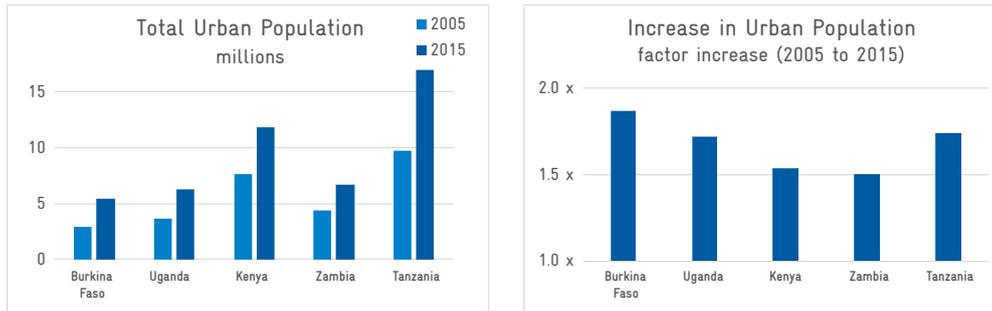
Figure 1: GDP per capita and relative economic growth

Source: World Bank GDP per capita, PPP (constant 2011 international \$)

12) datahelpdesk.worldbank.org/knowledgebase/articles/906519 (Accessed May 2018)

Figure 2:
Urban population
growth

Tanzania faced the largest challenge, with 7.2 million more urban people to serve over the period 2005 to 2015 compared to Kenya with 4.1 million and Burkina Faso, Uganda and Zambia with between 2.2 and 2.6 million more people (Figure 2).



Source: Country case studies

Urban population grew by a factor of between 1.5 and 1.87 in the five countries, with Burkina Faso facing the largest challenges in proportional terms (+87%).

Uganda's extent of urbanisation, 16% in 2015, was lower than the other countries with the proportion of the population living in urban areas in the other countries ranging between 25% (Kenya) and 40% (Zambia). **High rates of urban population growth are expected to continue in all of the five countries.**

Box 2: Population data, definition of urban and sector reporting

This report uses Census-based data, as reported to international bodies (United Nations, World Bank, Joint Monitoring Program) as the basis for comparison of urban population and access data between countries. Different countries define their urban populations in different ways and there are differences

in how sector bodies such as the regulator define and report on utility service area populations. For example, utility service areas in Kenya are based on a density definition resulting in a utility service area population that is higher than the reported census urban population; and in Uganda, the rural population served by urban utilities is counted as part of the urban population served in sector reports.

Poverty

Half of the extremely poor globally live in sub-Saharan Africa.¹³ The proportion of people who are poor ranges from 36% to 58% across the five countries (Table 1). While the large majority of the poor live in rural areas, poverty is also an urban phenomenon. Access to services, including water and sanitation, and economic opportunities in urban areas offer a pathway out of poverty, recognising that poverty is a multi-dimensional phenomenon.

Table 1:
Extent of poverty

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Headcount ratio at \$1.9 per day ¹	44%	36%	43%	58%	49%
Year	2014	2012	2005	2015	2011
Multi-dimensional Poverty Index ²	0.54	0.37	0.234	0.33	0.33
Year	2010	2011	2009	2007	2010

1. Source: data.worldbank.org/indicator (accessed April 2018). At PPP (2011).

2. Source: Alkire and Housseini (2014). MPI assesses people's deprivations according to ten indicators organized into three equally weighted dimensions: education, health and living standards. The MPI is the product of the percentage of people identified as poor and the average intensity – or average deprivation score among the poor. Scale 0 – 1. Higher is worse.

13) datahelpdesk.worldbank.org/knowledgebase/articles/906519 (Accessed May 2018)

Politics and governance

Two of the broader sets of governance indicators are particularly relevant to this study – government effectiveness and control over corruption. These are defined below.

Government effectiveness reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies. Government effectiveness improved in Kenya and Zambia but was static in Burkina Faso and Uganda and declined in Tanzania over the period 2005 to 2015. Government effectiveness was better in Kenya compared to the other countries.

Control over corruption reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. Control over corruption improved in Zambia, but declined over a substantial portion of the period 2005 to 2015 in the other countries. Control over corruption was worse in Kenya and Uganda compared to the other three countries.

The reforms of the water sector in the five case study countries have taken place in a challenging governance context (Figures 3 and 4).

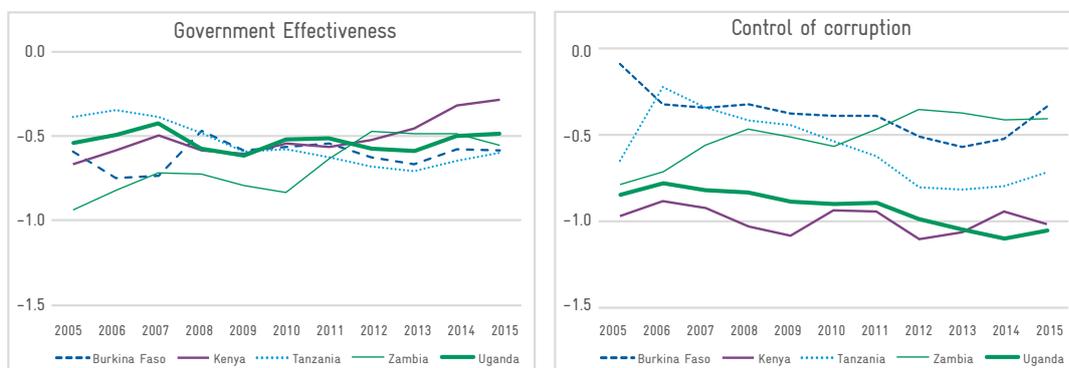


Figure 3: Governance indicators

Source: Worldwide governance indicators, info.worldbank.org/governance/wgi. Note: Indicator scale is -2.5 to +2.5

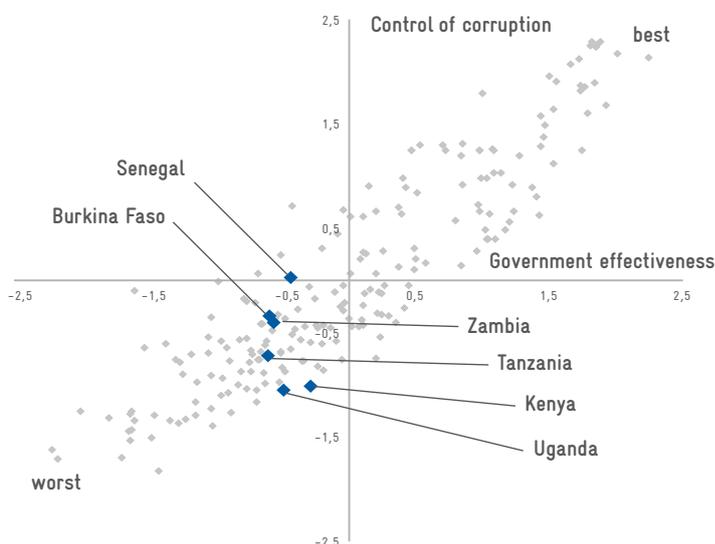


Figure 4: World governance indicators 2016

Source: Worldwide governance indicators, info.worldbank.org/governance/wgi

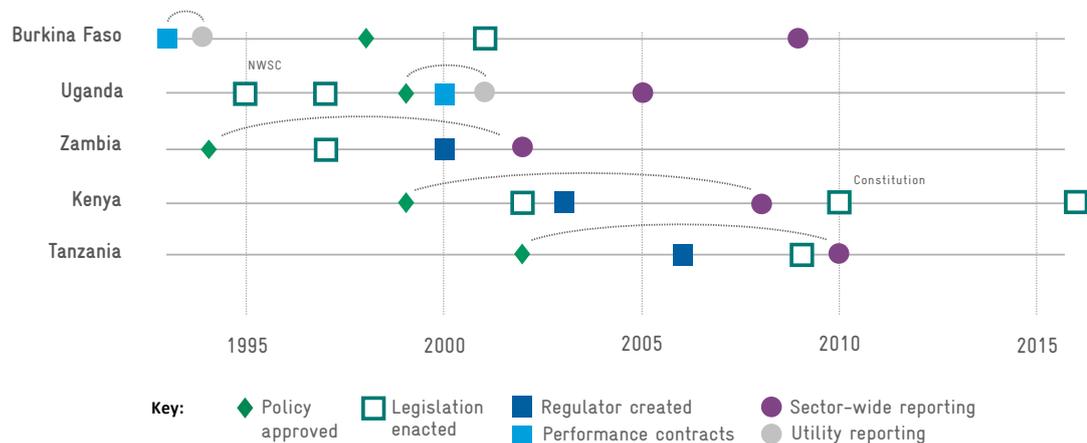
2 WATER SECTOR REFORMS

2.1 Evolution of policy, legislation, regulation and reporting

All five countries undertook significant urban water reforms, starting in the 1990s. These reforms took place in the context of structural adjustments and fiscal reforms during the 1980s and 1990s that aimed to increase macro-economic stability and reduce fiscal imbalances in response to economic crisis in each country. Reform of state-owned enterprises, including inefficient and poorly performing urban water utilities, was part of these adjustments with a view to reducing their drain on a very limited government budget.

The evolution of the water policy and legislative frameworks, the timing of the establishment of an independent (or more explicit) regulatory function and the commencement of regular (and publicly available) reporting on performance is shown in Figure 5.

Figure 5:
Evolution of the
policy, legislative,
regulatory and
reporting frame-
works in the case
study countries



Source: Author

Reforms take a long time to be implemented. Policy reform commenced earliest in Zambia (1993), then Burkina Faso (1998), Kenya and Uganda (1999) and lastly Tanzania (2002). New water legislation followed the approval of the new water policy after three years for Zambia, Burkina Faso and Kenya, but only after six years for Tanzania. Legislation preceded policy in the case of Uganda. Independent regulators were established in Zambia (2000), Kenya (2003) and Tanzania (2006). Three-year performance contracts between the government and ONEA, the national urban water utility, were established in 1993 in Burkina Faso and oversight of these contracts was strengthened through a multi-stakeholder committee in 2008. Performance contracts were initiated in Uganda in 2000. Regular and publicly available reporting on utility performance started in 2001 in Uganda, 2002 in Zambia, in 2008 in Kenya and Burkina Faso and in 2010 in Tanzania.

Three of the five countries followed what might be called a 'standard reform sequence' of policy, legislation, institutional reform (including the creation of an independent regulator) and then reporting on performance. Burkina Faso and Uganda both have dominant national utilities and have not created an independent regulator. **Differences in the timing and sequencing of reform pose difficulties for inter-country comparison of outcomes as discussed in Box 1.**

Achieving near universal access to a piped water supply and cost-recovery were key goals in all five country urban water reforms and were explicitly stated in the water policies.

2.2 Institutional structure

The institutional structure of the water sector for each of the five countries is given in Annex 1. Key differentiating features are summarised below.

In **Burkina Faso** a private company provided water to high-income areas in Ouagadougou and other towns after independence and up to 1977. Responsibility was passed on to the municipalities and then to a public entity, ONEA, in 1994. The need to recuperate financing for a large new dam, and in the context of structural adjustment, led to a proposal to lease responsibility for ONEA's operations to a private operator as part of a broader set of financial conditions. An alternative was negotiated, namely, a performance-based service contract to support the public utility in the period 2001 to 2006. ONEA is responsible for and undertakes both investment and operations of water and sanitation (including promotion of on-site sanitation and faecal sludge management) for all urban areas (54 towns). ONEA has decentralized offices in the urban centers served by the utility. Regulation takes place through a performance contract ('contract-plan') with stakeholder oversight. This is also made possible and effective through a dialogue mechanism between ONEA, government and donors, supported by professional tariff studies and independent verification of sector data. Both municipalities and national government oversee ONEA's activities at the national and local level.

In **Uganda**, a single national service provider, NWSC, is responsible for both investment and operations for water supply and sewerage and dominates the urban sector. Sewer systems exist only in Kampala and a few large towns. Initially responsible for only Kampala and other large regional urban centres, NWSC's responsibilities grew to 218 towns in 2017. Both the health and water ministries have mandates related to sanitation. The Kampala Capital City Authority (KCCA) plays an active role in sanitation in the city, coordinating with the NWSC who provides sewerage services and facilities for the treatment of faecal sludge. Investments in urban areas outside of the NWSC take place through the regional Water and Sanitation Development Facilities (WSDFs) that are part of the water ministry. Faecal sludge treatment has recently become part of water and sanitation investments in these outlying areas. Operations in these other towns are supported by regional umbrella organisations. The intention is to create regional utilities to be responsible for operations for the small towns and rural growth centres not falling under the NWSC. Regulation is undertaken by the water ministry. The performance of NWSC is managed through a performance contract.

In **Kenya**, the investment function was separated from operations and both were professionalised in the early to mid 2000s. A separate regulator was established. The intention was for this structure to enable private sector participation in the operation of water services, but this did not materialise to any significant extent. A pro-poor financing mechanism was established (*Water Sector Trust Fund*, WSTF) to promote investments into 'last mile' infrastructure serving poor people (GIZ 2015). Decentralisation of service provision resulted in many small water companies. The 2010 constitution created a new level of government (47 counties) with responsibility for water services. It is anticipated that the number of service providers will reduce over time to coincide with the number of county governments. In order to more fully realize economies of scale, the number of service providers could be lower than 47. The role of the regional asset holders with an investment function (the Water Services Boards), established prior to the new constitution, is contested and future investment arrangements for the sector are uncertain.

In **Zambia**, eleven commercial utilities were established with responsibility for water and sewerage investments and operations. Investment is supported by the government as most of the investment is funded through development partners passed on as grants through the government. A separate regulator was established. The regulator housed a pro-poor funding mechanism (*Devolution Trust Fund*, DTF) to promote investment in 'last-mile' infrastructure to provide services to poor households. This fund is no longer active. The regulator has been active in trying to understand faecal sludge flows in urban areas and is working with the service providers and development partners to find solutions for the improved management (transport and treatment) of faecal sludge in urban areas, including the use of the private sector. A study on the design for a new sector financing mechanism is being undertaken.

The institutional structure in **Tanzania** is similar to that in Kenya (a national regulator and decentralised professionalised operations) except the investment function was not professionalised. In Tanzania the national ministry plays a decisive role in allocating investments. Allocations are based on need but there is little transparency in the way allocations are made and an apparent absence of objective criteria and indicators to guide investments and measure or monitor their implementation and impact. This is thought to have impacted negatively on the performance of these investments. The asset holding and investment function was separated in the case of Dar es Salaam, with the creation of two companies – DAWASA the asset holder and DAWASCO the operator. This was done explicitly to enable private sector participation in the operations functions. This did not work out but the institutional structure has been retained. There are ongoing discussions on changing this structure to recombine investment and operations into a single company. Tanzania, like Kenya, also has many small companies responsible for water supply and sanitation.

2.3 Governance

Sector Governance concerns the informal and formal rules of the game, that is, the interactions and institutionally defined relationships between sector institutions within the political, legal and institutional framework. This also includes corruption and political interference with the operational decisions of sector institutions like regulators and service providers.

Qualitative assessment

A summary of the qualitative assessment of governance is given in Table 2.

Table 2:
Qualitative
assessment of
governance

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Separation of core sector functions (policy – regulation – financing – service delivery)	Moderate to high	Moderate to high	High	Moderate to high	Moderate to high
Real autonomy of institutions responsible for financing.	Moderate to high	Moderate	Moderate to low	Moderate	Low
Real autonomy of institutions responsible for regulation.	Moderate	Low	High	Moderate to high	Moderate
Real autonomy of institutions responsible for service delivery.	Moderate to high	Moderate	Moderate to low	Low	Moderate to low
Separation of tariff setting from politics	Moderate to high	Moderate	Moderate to low	Moderate	Moderate to low
Overall score	70%	45%	55%	50%	35%

Source: compiled from country reports

Reflections on the extent that governance supports or constrains sector performance are presented below.

Burkina Faso: The political will of the government and the autonomy granted to ONEA in carrying out its mandate under conditions of private law has been a determining factor of ONEA's success. In addition, its technical performance (for example, low NRW) is an indicator of good management performance and the absence of political interference and corruption. The payment of competitive salaries puts ONEA in the position to attract a

talented and skilled work force. The political support allowed enforcement of payments from its customers resulting in high cash collection efficiency. On a contrary note, there has been a slight downward trend in commercial performance in recent years indicating that political factors may be keeping tariffs at levels that no longer reflect costs.

Uganda: Perspectives on the significance of governance issues in supporting and/or constraining sector performance vary between stakeholders. On the one hand, the NWSC is heralded by many as an excellently performing, professionally managed institution, that has delivered good outcomes. By this account, political support is considered to be positive, and independent regulation unnecessary. On the other hand, the relative weakness of the Ministry in its regulation function and a lack of independent verification of financial and performance data, together with the close political relationship the NWSC enjoys at a high level with the government, is considered by others to pose significant risks to the utility and to future performance and outcomes. With respect to **tariffs**, these are determined through a political process, but the NWSC tariff is indexed to inflation and key cost drivers, and NWSC has managed to obtain and then retain a relatively high tariff.

Kenya: Perspectives on the significance of governance issues in constraining sector performance vary between stakeholders. The moderate-to-low assessments given above would be considered to be generous by some stakeholders. However, these are made in recognition of considerable progress compared to the situation prior to the reforms. **There appears to be strong evidence that political influences strongly affect sector outcomes.** For example, after the regulator placed Coast Water (a poorly performing water services board) under an administered regulatory regime, and recommended, after the end of the maximum intervention period, that the board should be replaced, no action was taken. The regulator has managed to remain relatively independent but its actions have limited consequences. The Cabinet Secretary has strong powers of appointment of the water services boards, and county governors of the appointment of the water company boards. Minimum requirements for appointments, set in law, are routinely flouted without consequence. The fact that poor performance among a significant number of both the water services boards and water services providers has been allowed to persist suggests that the governance role of governing boards is not as effective as it should be. The recently established governance indicators monitored and published by WASREB support the view that there is ample room for governance improvement.

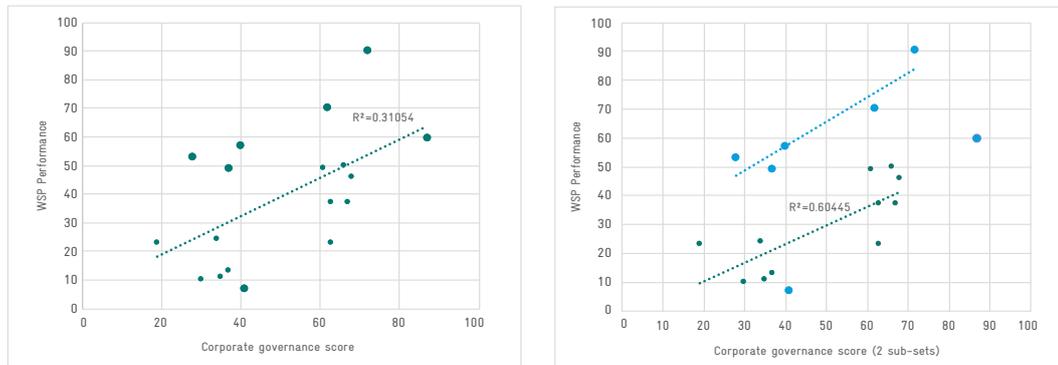
WASREB has recently initiated reporting on a corporate governance indicator to promote better management practices. To date only a subset of 32 Water Service Providers (WSPs) have reported on this indicator which is being rolled out over time, together with training provided to the WSP management, their boards and the County politicians responsible for water. The methodology and robustness of the indicator are still being tested and developed. Early results for 17 WSPs scoring 40-and-below and 60-and-above are shown in Figure 6.¹⁴ This subset of data, albeit for a small number of utilities, shows a possible correlation between corporate governance and WSP performance as might be anticipated.¹⁵ Among the very large WSPs, Kisumu, with a high governance score and moderate performance, and Mombasa are outliers.¹⁶ The causal relationships are not straightforward. A poor performing utility might have improved its governance but the results in terms of an improvement in performance might take some time to show. Alternatively, a well-performing utility that was well governed, but whose governance has deteriorated, might be able to maintain good performance for a period of time before performance drops.

14) Ruiru-Juja which scored 39 on the governance indicator and 81 for overall WSP performance was excluded because the WSP was found by the regulator, subsequent to the publication of the Impact Report #9, to be misreporting its performance. Mombasa which scores 41 on the governance indicator was included.

15) There is a much wider dispersion of performance for WSPs with a 'middling' governance indicator score of between 40 and 60. This is not surprising. If these are included, the correlation between governance and impact for the 32 reporting WSPs is very weak (0.15).

16) Kisumu has a lower performance score (compared to the other better performing very large WSPs) mainly as a result of its relatively low access (68%) and high non-revenue water (49%).

Figure 6:
Correlation
between corporate
governance and
performance



Source: WASREB Impact Report #9 2016. Note: the larger dots represent the very large WSPs. The right hand graph shows the correlation separately for the very large and the other (not very large) WSPs.

Zambia: Political influence within the sector is significant. Board nominations are still largely influenced by political considerations. In late 2017, only two out of the eleven boards of the utilities were nominated and operating. In the remaining utilities, representatives of the ministry are directly exercising the board functions. While the regulator NWASCO (National Water Supply and Sanitation Council) enjoys a significant degree of autonomy, its decisions, especially with respect to tariffs, are not always transparent. There appears to be a risk that the incumbent political leadership will expand its influence on the utilities. With the most recent changes, all key functions, such as investment, regulation and service provision will be under one ministry, which will be an improvement on the previous arrangement. There are no clear trends in financial performance, and as far as the technical performance is concerned, regulation did not have a decisive impact on NRW, which remains at consistently high levels (more than 50%) over the last decade. There is a need to improve governance and to build capacity for operations and maintenance across most of the sector. **This suggests governance is a constraining influence on sector performance.**

Tanzania: While ministry officials argue that capacity is the main constraint to more effective performance and that the politics is generally benign, recent examples in the energy sector suggest that politics may play a more significant influence in sector outcomes than government officials would be comfortable to admit. The regulator has managed to remain relatively independent but is clearly under political pressure, and this must affect decision making within the regulator. The Minister has strong powers of appointment of utility board members. The fact that poor performance among a significant number of utilities has been allowed to persist suggests that the governance role of boards is not as effective as it should be. It would be surprising if politics did not play a role in this. The current political leadership appears unwilling to approve tariff increases and at the same time is reducing subsidies. The stated political intention is to address inefficiencies and corruption but actual practices suggest that patronage and factional politics may play a significant role. **The low governance score relative to its peers is strongly suggestive of the fact that poor governance constrains sector performance.**

In summary, sector governance significantly affects the efficiency and effectiveness of investments, performance of institutions and the quality of service delivery.

3 SERVICE PROVIDER ARRANGEMENTS AND PERFORMANCE

3.1 National, regional and decentralized provision

Centralised provision. In Burkina Faso and Uganda there is a single national urban water services provider. These national entities serve all (or the majority) of the urban areas in the country – ONEA in Burkina Faso serves 54 towns and NWSA in Uganda serves 218 towns. In Uganda, small urban centres not managed by NWSA are supported or operated by four newly established regional utilities or private operators (that are being phased out).

Regionalised provision. In Zambia, responsibility for urban water services is regionalised with 11 regional providers.

Decentralised provision. Responsibility for water services provision is decentralised in Kenya and Tanzania. More than half of the service providers in Kenya and Tanzania have less than 5 000 water connections.

The water regulators in Kenya (WASREB), Tanzania (EWURA) and Zambia (NWASCO) regulate about 86, 106 and 11 service providers respectively through licensing arrangements.

The significance of the capital city. In Kenya, Tanzania and Zambia there is one service provider that is much larger than the others, serving the capital of each of the three countries and a large share of the total urban population in the country (Table 3). In the case of Burkina Faso and Uganda, the operations in the capital city are also dominant for the respective national utilities and are a major source of income for the utility. This income is used to cross-subsidise services in the smaller towns outside the capital in both countries.

Country	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Capital city	Ouagadougou	Kampala	Nairobi	Lusaka	Dar es Salaam ¹⁷
Population of capital city (Mio people)	2.2	2.5	3.9	2.4	5.2
Total urban population (Mio people)	5.4	6.3	11.8	6.6	16.9
%	41%	40%	33%	36%	31%
Served by	ONEA (national utility)	NWSA (national utility)	Nairobi Water	Lusaka Water	DAWASCO & DAWASA

Table 3: Service provider arrangements for the capital city (2015)

3.2 Professionalisation

A professional entity is defined as an entity with a professional management team governed by a board of directors. Another important element of professionalisation is regular reporting in the form of an annual report and annual audited financial statements, or at least reporting on key financial and performance indicators to a regulator.

Service provision has been professionalised in all of the main urban centers in all five countries and extended to a greater or lesser extent to the smaller urban or semi-urban centres. The definition of utility service areas, what constitutes urban, and the extent to which small towns are included within the professionalised and regulated sector differ between countries.

Progress with the professionalisation of entities can be approximately tracked by progress in reporting on these entities either in the form of annual reports by the utilities themselves or reporting by the regulators on utility performance in each country.

17) Dodoma became recently the new political capital of Tanzania.

In **Burkina Faso**, ONEA was established in **1994** and reporting on performance is available from **2000**. More rigorous oversight of performance and reporting was established in **2008** with the creation of the stakeholder oversight committee. The utility reach extends to 54 towns.

In **Uganda**, reporting on NWSC performance is available from **2001**. NWSC initially served only Kampala and the larger towns but the number of towns served by NWSC grew rapidly from 23 to 218 towns in the period 2013 to 2018.

In **Kenya**, reporting by WASREB started in **2006** for 30 service providers (less than a third of regulated service providers at the time, but representing a larger share of the population served because this set included the largest service providers). This grew to 86 service providers in 2013.

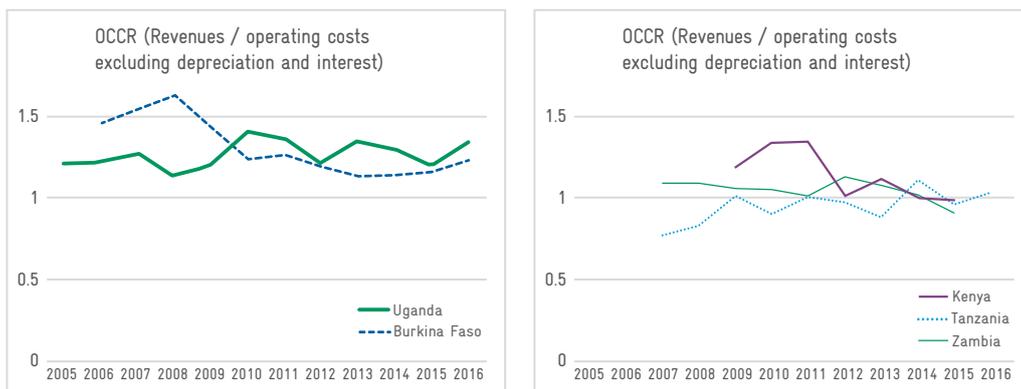
In **Zambia**, the commercial utilities were formed in **2000** and first reporting by NWASCO was in 2001. The regulator was able to report on 80% of the urban population in 2000 and this grew steadily to reporting on 100% of the urban population by 2010.

In **Tanzania**, 19 commercial Urban Water and Sanitation Authorities were established in **1998**, with a population in their service areas of 6 million in 2006. This number grew to 25 in 2016, with 10 million in their combined total service area. The regulator also reports on 83 district water services authorities operating in 69 district headquarters and 14 townships, with more than 3 million people in their service area.

3.3 Commercialisation

The urban water service providers were established in each country with a policy intent to recover at least the operating costs of the service and to make a contribution towards the capital costs. The extent of commercialisation therefore can be measured by the extent of cost-recovery. This can be measured by the operating cost coverage ratio (OCCR) which is defined as the ratio of billing revenue to operating costs. This is shown in Figure 7.

Figure 7:
Operating cost
coverage ratio



Source: Case study reports

At a sector wide level, commercialisation was well established early on in both **Uganda** (for NWSC) and **Burkina Faso** (for ONEA) with an operating cost recovery ratio that has been maintained at a level of well above one from at least 2003 for NWSC (and throughout the period) and from earlier in the case of ONEA (also throughout the period).

This has not been the case for **Kenya, Tanzania and Zambia**. In Kenya, the ratio was well above one in the years 2009 to 2011, but declined to 1 in 2012 and again in 2014 and 2015. In Zambia the trend declined over most of the period 2007 to 2015 with the exception of 2012 when the ratio increased. The ratio in 2015 was below one. In Tanzania a ratio of above one was achieved for the first time in 2014 but then declined again to one in 2015. The significance of this for sector financing is discussed in Section 4. It should be noted that some individual utilities in each of the three countries have been fully commercialised from early on, for example, Nyeri in Kenya.

3.4 Performance

3.4.1 Assessing service provider performance

Water service providers translate investments in infrastructure into a service (reliable water that is safe to drink).

A water service provider may be considered to be performing well if it performs well across multiple dimensions of performance (Table 4). In addition to directly affecting customer experience, service provider performance also has a substantial impact on the efficiency with which investment is translated into services and then into cash revenues to sustain the service. See Box 3.

1. Accessibility	A large share of the population in the utility's service area obtains water that is safe, sufficient, and reliable and convenient (including public access) [Indicators: share of population (total and poor) with access to piped water]
2. Safety	The water supplied is safe to drink [Indicators: appropriate sampling, testing, verification & reporting systems in place]
3. Sufficiency	People get enough water to at least meet basic health requirements. [Benchmark: 50 liters per person per day in urban areas (WHO)]
4. Reliability	Water is available, with few supply interruptions of limited duration. [Benchmark: 24 hours per day]
5. Convenience	It does not take long to get water and water does not have to be carried far. [Benchmark: on-site delivery or proximate public access]
6. Cost-effectiveness	The service is provided cost-effectively (effectiveness and efficiency) [Indicators: collection ratio, NRW, staff productivity]
7. Financial sustainability	Sufficient resources available to maintain, replace and expand the infrastructure [Indicator: operating cost coverage ratio]
8. Affordability	Ability of poor households to afford water to meet at least basic needs [Indicator: household expenditure on water as percentage of total expenditure]
9. Responsiveness	The utility is responsive to customers [Indicators: call center, access to regional offices, use of cell-phone based technologies to improve communications between customers & utility]
10. Transparency	Customers have access to information on utility activities and performance [Indicators: availability of annual and financial reports; user friendly website]

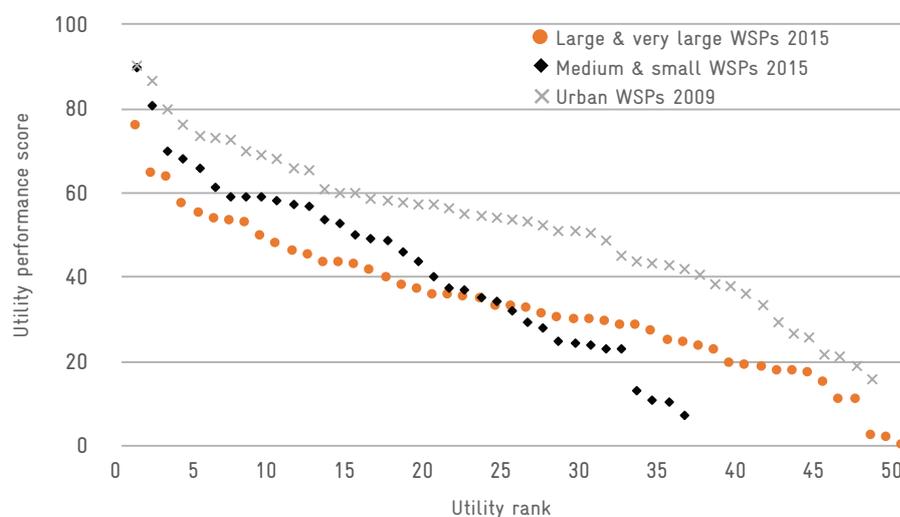
Table 4: Ten dimensions for assessing successful urban water utilities

Source: Author

3.4.2 Distribution of utility performance

There is a wide distribution of utility performance across Sub-Saharan Africa and within countries where provision is decentralised, for example, in Kenya (Figure 8).¹⁸

Figure 8:
Utility performance scores and ranking in Kenya (2009 and 2015)



Source: WAREB Impact reports 2016 and 2010. Composite indicate. Scale has been normalised to 0 – 100

3.4.3 Poor utility performance hurts the poor the most

A large number of public utilities in Sub-Saharan Africa (and other developing countries) falls into a low-level equilibrium trap. Tariffs are kept low for political reasons and the utility is starved of resources. These utilities are unable to access loan finance and must rely on unreliable transfers (grants) from government and, more typically, development partners. Even if tariffs are set at a reasonable level, resources are often wasted through high levels of inefficiency because the utility is also a source of patronage through management and staff appointments and extractive procurement practices. Consequently, services are unreliable and there is little expansion of the network. **This situation hurts the poor the most, who must rely on expensive water from informal water vendors,** paying a large multiple of the utility tariff for water that is often of dubious quality.¹⁹

3.4.4 Good utility performance is possible

Reliable and comparable data across all of the dimensions of service provider performance (Table 4) is not available. However, data for a reduced set of performance indicators is available and is shown for the top performing utilities in three case study countries in comparison with the median for Sub-Saharan Africa (Table 5). SDE in Senegal is included as it is widely regarded as one of the best performing utilities in Africa.

18) The water regulator in Kenya, WASREB, uses a composite metric to measure performance comprising the following indicators: water coverage, drinking water quality, hours of supply, personnel expenditure, operating cost coverage, revenue collection efficiency, non-revenue water, staff productivity and metering ratio. See WASREB Impact Report #9 2016 for details. Comparative data on composite metrics for sub-Saharan Africa is not available, but analysis of individual performance indicators shows a similar dispersion of performance across the continent as is shown here for Kenya.

19) Heymans et al (2016) and GIZ (2012).

	SDE (Senegal)	Nyeri (Kenya)	ONEA (Burkina Faso)	NWSC (Uganda)	Median (SSA ¹)
Access to piped water	97%	91%	90%	78%	68%
Hours of supply	24	24	23	18	18
Operating cost coverage ratio	1.39	1.39	1.18	1.28	0.92
Cash collection efficiency	98%	-100%	97%	-100%	91%
Nonrevenue water	20%	18%	18%	28%	38%
Staff productivity ²	3	3	4	6	10

Sources: Case studies, Heymans et al (2016) and IBNET (for median data).

Notes: 1 SSA = Sub-Saharan Africa. 2 Staff per 1000 connections.

Table 5: Relatively well-performing urban water utilities and median performance in Sub-Saharan Africa (2015)

3.4.5 Why do some utilities perform relatively well?

It is important to understand why some utilities are able to perform better than others, noting that the top performers have not always been that way, but typically have started out as poorly performing utilities themselves (Table 6).

Performance Indicator	1998	2018	Improvement
Access to piped water	48%	78%	30 percentage points
Total connections	50,826	530,000	10 fold
Growth in connections (new connections per year)	3,317	30,000	9 fold
Growth in extent of metering (number of metered connections)	37,217	529,400	14 fold
Staff productivity (Staff per 1000 connections)	36	6	6 fold
Collection efficiency	60%	100%	40 percentage points
Non-revenue water	60%	28%	32 percentage points
Annual Turnover (US\$ million)	21	88	4 fold
Profit before depr. (US\$ million)	minus 4	30	+34 million dollars

Source: NWSC audited accounts

Table 6: Example of improved performance – NWSC, Uganda 1998 to 2018

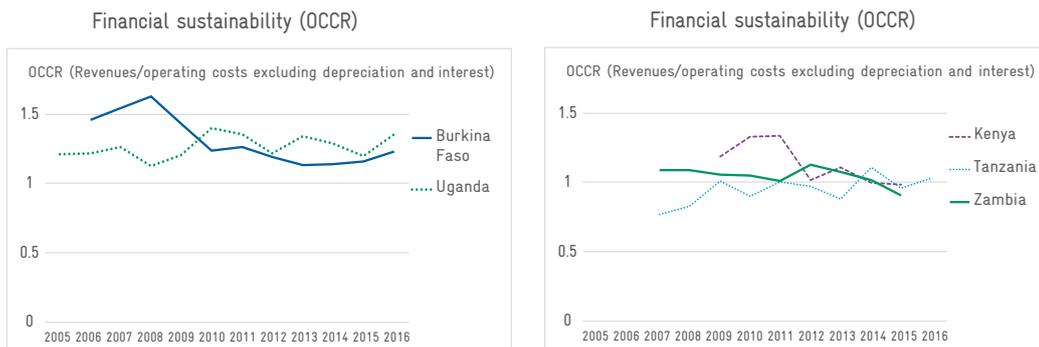
Besides NWSC (Uganda, see Table 6), ONEA (Burkina Faso), SDE (Senegal) and Nyeri (Kenya) are other examples of utilities whose performance improved dramatically over time.

The key differentiating factor between well and poorly performing utilities is the quality of management applied (and their autonomy of action to do the right thing) and an adequate tariff. These are, in turn, enabled or disabled by how the utility is governed.²⁰

3.4.6 Financial sustainability and contribution to investments

The financial sustainability of service providers can be measured by the ability of the providers to generate cash surpluses after taking into account operating costs, where the operating costs exclude any capital related items (interest, depreciation, repayment of loans). This can be measured by the operating cost coverage ratio (OCCR) which is defined as the ratio of billing revenue over operating costs and is shown in Figure 9.²¹ For example, an OCCR of 1.25 indicates that 20% of revenues could be set aside as a contribution to investments ($25/(100+25)$). While there is not an established and agreed benchmark for OCCR, an OCCR of 1.5 could be considered as being the appropriate target for a truly financially sustainable utility.

Figure 9:
Operating cost coverage ratio



Source: Case study reports

Burkina Faso and Uganda perform much better on this metric compared to the other three countries – Burkina Faso and Uganda have been able to sustain an OCCR well above one whereas the others have not. However, only ONEA in Burkina Faso was able to achieve an OCCR of 1.5 or more for any part of the period, and only for a two to three-year period about ten years ago. It should be noted that some utilities in the other three countries (such as Nyeri in Kenya) have been able to attain and sustain a substantially positive OCCR over time, but this has not been attained at a sector level (measured as the aggregate of all urban water utilities in the country).

The tariff level is also important

The average effective tariff (billing revenue divided by water sales volume) for ONEA, NWSC and the utilities supplying Nairobi, Dar es Salaam and Lusaka is shown in Figure 10.

20) Ibid.

21) Ideally, the operating cost coverage ratio should use cash collected as the revenue measure rather than billings. Data on cash collected is harder to obtain and hence billing revenue has been used in this report.

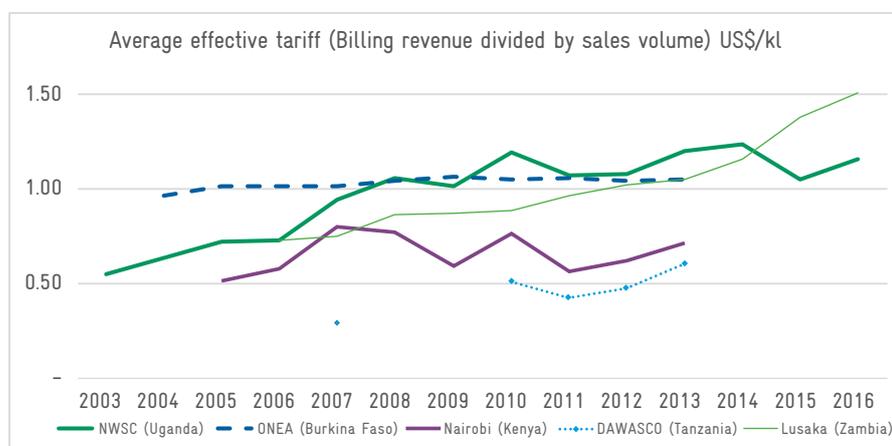


Figure 10:
Average
effective tariff

Source: Case study reports. Note: Conversion is done at the official exchange rate sourced from World Bank data.

The level of the tariff is below \$0.75 per kl for DAWASCO (Tanzania) and Nairobi (Kenya) and is associated with an OCCR of below 1 for each country sector as a whole. The higher level of tariff (above \$1 per kl) for ONEA (Burkina Faso) and NWSC (Uganda) is associated with an OCCR well above 1. **A relationship between tariff level and OCCR is expected.** The trend in the tariff for Lusaka (increasing) is opposite to the trend for OCCR in the sector as a whole (declining), and this is not expected.

3.4.7 Trends in utility performance in case study countries

It is hard to assess and compare performance between countries and over time for a number of reasons. Utility performance is multi-dimensional (Table 4). Different countries report on composite utility performance in different ways. Both the methodology and the composition of the dataset (number of utilities, number of utilities reporting) may vary over time. For these reasons, a comprehensive assessment of utility performance in the case study countries was not part of the study brief. Notwithstanding this, it is possible to make some broad observations (Table 7).

Burkina Faso	Substantially positive	The national utility, ONEA, substantially improved its performance over the period 2000 to 2016.
Uganda	Substantially positive	The national utility, NWSC, substantially improved its performance over the period 1998 to 2016.
Kenya	Mildly negative	An overall composite indicator for utility performance across the sector is not reported. However, the analysis of the performance distribution between 2009 and 2015 indicates that sector performance declined over this period (Figure 8). However, this was not the case for all utilities. For example, Nyeri substantially improved its performance in the period 1995 to 2015 and was assessed as the top performing utility in Kenya for seven years in a row (2009–2015).
Zambia	Mildly positive	An overall composite indicator for utility performance across the sector is not reported. Timeline data on some indicators is presented and this shows a positive improvement overall over ten years. (NWASCO 2016 report).
Tanzania	Not determined	An overall composite indicator for utility performance across the sector is not reported. There is a range of performance similar to that reported for Kenya in Figure 8. Some utilities, for example Tanga, have consistently performed well compared to the others over time.

Table 7: Trends
in utility perfor-
mance – summary
observations

In the case of both Burkina Faso and Uganda, substantial improvements in utility performance have been achieved. In both cases, the reform of the utility was at the heart of the sector reform process. This was not the case for the other three countries. In these cases, while emphasis was placed on the structural reforms (creating autonomous professionally managed utilities) these did not lead to substantial improvements in the performance of the utilities across all utilities, although there were significant improvements in performance for some utilities (for example, Nyeri in Kenya).

3.5 Emerging findings and key messages

It is possible for urban water utilities to be financially sustainable even in poor countries. The examples of SDE in Senegal, ONEA in Burkina Faso, NWSC in Uganda, and Nyeri in Kenya show that it is possible for urban water utilities to attain and maintain financial sustainability over long periods of time, with a substantially positive operating cost coverage ratio.

Good utility performance is possible. Good utility performance, measured as a composite indicator (including access to piped water, reliability of supply, water quality, non-revenue water, cash collection efficiency, positive operating cost coverage ratio, staff productivity) is possible even in poor countries and in challenging contexts. Examples include SDE, ONEA, NWSC and Nyeri.

Good utility performance enables existing financial resources to be stretched much further. Improving utility performance is thus very important *to both increase and maximise* the impact of investments in the urban water sector. This is even more relevant in a context of limited availability of grants and concessionary loan finance from governments through tax revenue and from development partners through transfers (see Box 3).

Sound governance is all important for good utility performance. The key difference between a poorly performing and well-performing utility is governance. This is the key differentiating factor, rather than the socio-economic conditions, starting conditions or level of investment. Good performance has been achieved in the context of low levels of economic development (Senegal, Burkina Faso and Uganda) and challenging starting conditions (SDE, ONEA, NWSC, Nyeri). There are many examples where large investments have been made, but utility performance has not improved (for example, REGIDESO in the Democratic Republic of Congo). **Sound governance allows for and supports sound leadership and competent management of the utility.** Length of tenure of the CEO is one possible (retrospective) indicator of sound governance. Frequent changes to utility management are almost certainly an indicator of poor governance. Successful utilities have generally had a good utility manager with a long tenure.²²

22) Heymans et al (2016).

Box 3: Water utilities translate investments into revenues – why good performance matters

The utility can be thought of as the engine of investment. The utility translates investments into services that customers are willing and able to pay for. The payments by customers make it possible to sustain the service through covering operating and maintenance costs and to pay for rehabilitating and expanding the asset base. When a utility is able to generate a cash surplus after meeting its operating expenses, then is it able to take up loans to finance investments and thus sustain its investments over time.

The performance of the utility thus has a direct bearing on the efficiency with which investments translate into services, and on its ability to raise loan finance. **Nonrevenue water (NRW) and cash collection efficiency are key indicators of operational efficiency and management effectiveness at an urban water utility.** Achieving high levels of cash collection efficiency and low non-revenue water requires sound management practices.

The following illustrative example assumes a utility serving a city of three million people, with water production at 150 liters per person per day, a tariff of \$1 per kl sold and operating costs of \$66 million per annum (Table 8).

	NRW	Sales lcd	Collection Efficiency	Cash revenue \$ million pa	Cash surplus \$ million pa	OCCR (Cash based)	Unit cost (\$/kl sold)
Inefficient utility	50%	75	80%	66	0	1.0	0.8
Efficient utility	25%	113	97%	120	54	1.8	0.5

Table 8: Improving utility efficiency matters – illustrative revenue gains

Increasing utility efficiency through reducing non-revenue water from 50% to 25% and increasing collection efficiency from 80% to 97% increases cash revenues by \$54 million per annum, an increase of 81% on the base revenue of \$66 million per annum. Whereas the inefficient utility charging a reasonable tariff (\$1 per kl) would not be able to raise loan finance, the efficient utility would have the substantive capability to do so, at the same tariff level and assuming the same cost base.¹

Good performance enables existing financial resources to be stretched much further. Improving utility performance is thus very important to both increase and maximise the impact of investments in the urban water sector in a context of limited availability of grants and concessionary loan finance from governments through tax revenue and from development partners through transfers.

Good utility performance also attracts increased levels of financing. Well-performing utilities such as SDE in Senegal, ONEA in Burkina Faso, NWSC in Uganda and Nyeri in Kenya have shown that they are able to attract financing to meet their investment needs.

Source: Author

Note:

¹ Inefficient utilities typically have scope to reduce expenditure on existing activities and still achieve the same results. However, it is also typically appropriate for these utilities to reallocate these savings into priority areas not previously attended to, in order to achieve better results. The simplified example assumes these two effects cancel each other out so that expenditure remains constant but with improved results.

4 SECTOR INVESTMENT

4.1 Financing arrangements

4.1.1 Responsibility for investment

Responsibility for investment planning and implementation is set out in Table 9.

Table 9: Responsibility for investment planning and implementation, and separation (or not) from operations

Burkina Faso	The national utility, ONEA, undertakes both investment planning and implementation, and operates the assets. No separation from operations.
Uganda	The national utility, NWSC, undertakes both investment planning and implementation, and operates the assets for 218 towns. In other small urban centers and rural growth centers, investment planning and implementation is undertaken by four regional Water and Sanitation Development Facilities, units of the water ministry. No separation from operations.
Kenya	Eight regional water services boards were asset holders for national government but asset ownership has been transferred to the counties. The county-owned water companies are operators, but the 2010 constitution also gives counties the duty to plan and the right to invest. The future of the water services boards is uncertain. National water works development agencies are proposed to be established with a financing and investment function. Separation from operations.
Zambia	The 11 Commercial Utilities are asset holders and operators. No separation from operations.
Tanzania	The water services and sanitation authorities hold the assets and are also operators. In the case of Dar es Salaam, there is a separation of asset holding and operations into two separate companies. In practice, national government plays a strong role for weaker water services and sanitation authorities. No separation from operations, except for Dar es Salaam.

In the case of Burkina Faso and Uganda, a single national utility plays a significant role. In Kenya, regional professional entities were established but their future is uncertain in light of the constitutional allocation of the water services function to newly established county governments. In Zambia and Tanzania, investment planning is undertaken by the operators (except for a dedicated asset holding entity for Dar es Salaam) with strong government support, especially for the weaker utilities.

4.1.2 Financing strategies and aid modalities

Hypothesis: The existence of country financing strategies and mechanisms matters. The impact of a million dollars invested in a system – in terms of additional persons served – is higher, if both **country financing strategies and mechanisms and aid modalities and incentives set by donors reinforce each other** and aim at the expansion of service coverage in underserved urban areas (compared with situations, where either country financing strategies and mechanisms are not in place or, in cases where they are in place, where they are not reinforced by aid modalities and incentives set by donors).

An overview assessment of the country financing strategies and mechanisms and aid modalities and incentives for each country is presented in Table 10.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Long term sector financial model exists and is applied	Yes	No	No	No	No
Professionalisation of financing	Yes	Yes	Yes	No	No
Autonomy of investment decision making	High	Mod-High	High	Low	Low
Extent and effectiveness of commercialisation of water providers	High	High	Moderate	Moderate	Moderate
Quality of investment data	High	Low	Moderate	Low	Low
Transparency of investment data	High	Low	Moderate	Low	Low
Accountability for outcomes	High	Moderate	Moderate	Moderate	Moderate

Source: Country case studies

Table 10: Financial strategies and aid modalities – summary assessment

Distinguishing features are summarised below.

Sector financial model

Burkina Faso is the only one of the five countries to use a long-term financial model to inform investment strategy, sector financing, tariff reviews and budgeting on an annual basis.

Professionalisation of the investment function

The financing was professionalised in Burkina Faso, Uganda and Kenya. In the case of Burkina Faso and Uganda this was largely the result of a single national utility assuming responsibility for the investment function. In the case of Kenya, separate asset holding companies were established who undertook investment planning and execution. However, the future of these companies is uncertain after the responsibility (together with asset ownership) for water services was devolved to county governments. Although investment planning is undertaken by the professionalised water companies in Zambia and Tanzania, national government plays a significant role in the allocation of financing and in supporting the investment function in these utilities. These arrangements influence the extent to which there is autonomy in investment decision-making.

Autonomy of investment decision making

Burkina Faso: Investment decisions are made by ONEA and are based on plans and strategies.

Uganda: NWSC investments are professionalised, and made with political support. Investment allocations to towns are through a transparent budget process, but the criteria for allocation of funding between NWSC and small towns are not transparent.

Kenya: Investment allocations are made by government (through the water services boards) in consultation with development partners who provide the bulk of the investment funds. The WSTF has a competitive allocation process but this accounts for a small share of the funds. Political pressures influence the allocation of funds.

Zambia: Investment allocations are made through government structures and are subject to political influence. But, the DTF developed clear and effective mechanisms for pro-poor and competitive investment allocation for a small share of the total investments. The DTF is no longer active.

Tanzania: Investment allocations are made through government structures and are subject to political influence.

Quality and transparency of investment data

Investment data quality and transparency is good in Burkina Faso, moderate in Kenya and low in the other three countries. There appears to be some link between this and the professionalisation and extent of autonomy of investment decision making (Table 10).

Accountability for outcomes

Burkina Faso: Accountability is established through the sector oversight mechanisms and required independent auditing of finances and performance indicators. This has led to high levels of confidence in ONEA's reporting by development partners.

Uganda: Reporting in investments is done through the Joint Sector Performance Report but reporting is inconsistent between years and data is not independently verified. NWSC financials are audited by the Auditor General. Investments can be calculated from the financial statements.

Kenya: There is reporting on investments and access (annual sector reports), but this is not comprehensive, and the reporting and data is inconsistent over time with no third party verification of access data.

Zambia: There is reporting on investments and access (annual sector reports), but this is not fully comprehensive, and the reporting and data is inconsistent over time with no third party verification of access data.

Tanzania: There is reporting on investments and access (annual sector reports), but this is not comprehensive, and the reporting and data is inconsistent over time with no third party verification of access data. Inconsistent reporting makes it hard to track annual investment spent by program sub-component. Consolidated data on investments within each WSSA area by year is not available.

4.2 Investment

Summary data on investment into the urban water and sanitation sector is given in Table 11. It was not possible to separate the data between water and sanitation however the largest share of this investment is expected to be for water.

Burkina Faso invested the most as a percentage of GDP (0.4%), more than double that for Tanzania and Uganda. Kenya and Zambia invested the least, a little over half as much as Tanzania and Uganda.

Burkina Faso also invested the most per person living in urban areas (\$8.7 per year), more than 2.5 times that of Zambia who invested the least. Uganda invested the second highest amount, then Kenya and then Tanzania.

What is striking is that both Burkina Faso and Uganda are much poorer than the other counties yet invested more in each person living in urban areas compared to the others.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Urban WSS Investment (US\$ million) ¹	520	421	660	240	704
Period	2005-15	2006-15	2006-15	2005-15	2007-15
number of years	11	10	10	11	9
US\$ million per year	47	42	66	22	78
GDP (current US\$ million, 2016)	12 116	24 079	70 529	21 064	47 340
GDP per capita (at PPP, US\$, 2016) ²	1 595	1 687	2 926	3 636	2 583
Investment per year as % of GDP³	0.39%	0.17%	0.09%	0.10%	0.17%
Urban population in 2015 (million)	5.4	6.3	11.8	6.6	16.9
Investment per person per year²	8.7	6.7	5.6	3.3	4.6
Linkage between financing commitment & sector progress	Strong	Moderate			

Notes: 1. Converted at official exchange rate each year (World Bank data); 2. In constant 2011 US\$; 3. Colour coding indicates relative ranking – green (high), yellow (moderate), orange (low).

Table 11: Summary of investment into urban water and sanitation services

Consistency of annual investment

Annual investment in each country for the period 2006 to 2015 is shown in Figure 11.

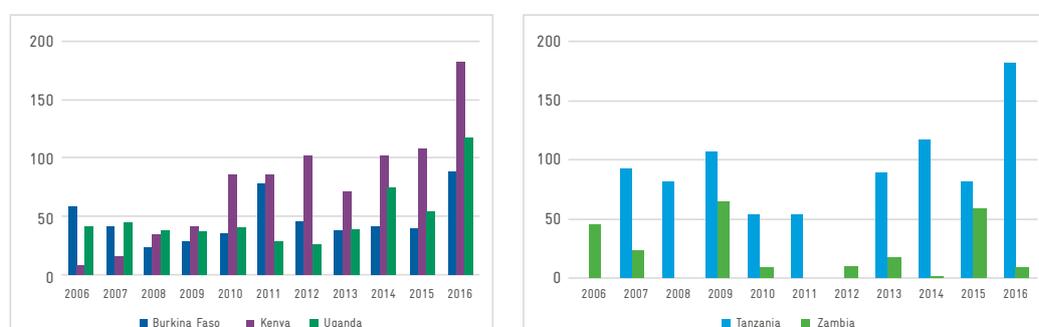


Figure 11: Annual investment in urban water and sanitation, US\$ million

Source: Country case studies

The impact of the reforms on investment is most evident in Kenya with a substantial increase off a low base in 2006 and 2007. However, investments are likely to have been positively affected in all of the countries as a result of the reforms. Annual investment is more consistent between years for Burkina Faso, Kenya and Uganda compared to Tanzania and Zambia.

4.3 Sector financial sustainability

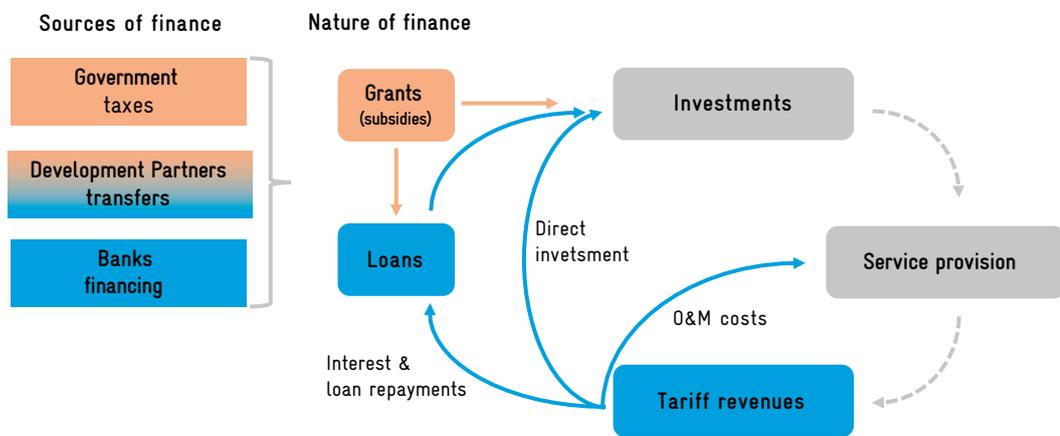
4.3.1 Framework

A framework for understanding and assessing sector financial sustainability is set out in Figure 12. Investments are made on the basis of cash (direct investment from tariff revenues), grants and/or loans. Loans must be repaid, either

from tariff revenues or from government taxes. Grants come from government taxes or from development partner transfers. Development partners provide transfers in the form of grants or loans, and banks and other financing institutions provide loans.

The two primary and sustainable sources of money to support the sector are therefore tariffs and government taxes. (Development partner transfers are not fully dependable and sustainable into the future.) A key purpose of the institutional reforms was to reduce sector dependence on government taxes. **Tariff revenues to support investments are therefore extremely important.**

Figure 12: A framework to understand sector sustainability



Source: Author

4.3.2 Dependence on development partners for investment

All countries studied had a high degree of dependence on grants and loans from development partners. Information on the split between loans and grants was not available for all of the countries (Table 12).

Table 12: Share of total investment coming from development partners

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
	90%	58%	88%	89%	74%
	As reported by Report Grand Public.	Calculated from available data. May be understated.	Calculated based on reported data.	As reported in the National Urban Water Supply and Sanitation Programme.	Calculated based on reported data. May be understated.

Source: Case study reports, as reported in sector performance reports and related documents.

4.3.3 Ability to contribute to investment from tariffs

There is an apparently strong association between OCCR and the level of contribution to investments from the tariff revenue (Table 13). Such a relation is expected because a utility with a higher OCCR will have more resources to contribute towards investments from the tariff.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
OCCR 2007–10	1.46	1.25	1.26	1.07	0.88
OCCR 2011–15	1.18	1.28	1.09	1.03	0.99
Contribution to investment from tariffs ¹	7%	10%	4%	<<1%	0%
Extent of sector self-financing	Moderate	Moderate–high	Low–Moderate	Low	Low

Table 13: OCCR and contribution to investment from tariffs

Note: 1. Over the period 2005 to 2015

4.3.4 Investment subsidies

What is missing in the analysis is the indication of how much the sector depends on subsidies from outside of the sector in the form of grants from government (taxes) and donors (transfers). Unfortunately, this information is not available on a consistent basis between countries.

In Uganda, for example, development partner loans to national government are passed on as grants to the sector institutions whereas this is not the case for Burkina Faso where development partner loans are repaid by the utility.

4.4 Emerging findings and key messages

Sufficiency of investment flows is an important foundation for good sector outcomes

An important foundation of increasing access to water and sanitation is the quantity of investment. If the level of investment is too low, then it cannot be expected that access will increase. On the contrary, low levels of investment will lead to a steady deterioration of the sector due to a failure to replace aging assets and to keep up with urban population growth. The quantity of investment is therefore very important.

It is important to pay attention to the necessary conditions to support greater investment. It is equally important to pay attention to the factors that will support the translation of investments into improved access. These factors are also addressed in this report.

Tariff revenue is essential to support increased investment flows

Investment can be financed through some combination of grants, loans and direct investments from tariff revenue. Where tariff revenues do not exceed the costs of operating and maintaining the service, then investment is entirely dependent on grants (subsidies). This is not sustainable and the evidence shows that investment in these contexts is insufficient to maintain services and increase access. **An operating cost coverage ratio of well above 1 (that is, tariff revenues exceed the operating and maintenance costs) is therefore essential to support a higher level of investments into the service through a combination of direct investment and loan financing** (Figure 12).

Implications for regulators: (See Section 8.3)

1. Regulators should incentivise and reward good corporate governance and support the financial sustainability of utilities.
2. Regulators can do this by awarding tariffs that are sufficient to ensure a substantially positive operating cost coverage ratio and to increase the share of investment financed from tariffs over time where there is good corporate governance.
3. Regulators can require the creation of a separate fund for investments to which a portion of the tariff must contribute. This reduces the risk of tariff increases being ‘eaten’ by increased and inefficient operating expenses.

The evidence from the case studies – factors affecting investment

Burkina Faso does much better than the other countries studied, investing a higher share of its GDP and more per person living in urban areas compared to the other countries, even though it is the poorest of the five countries. Tariff levels have consistently been above \$1 per kl and the operating cost coverage ratio (OCCR) was in the range of 1.2 to 1.5 over the ten-year period 2006 to 2015. Tariff revenues contributed 7% of investments. On the qualitative measures related to investment, Burkina Faso also performs much better than the other four countries. Although a high share of investments (90%) came from development partners, a share of these was provided directly to ONEA as loans and the utility has been able to meet the financing obligations related to these loans. The proposition is that development partners were attracted to support a well-governed and efficient utility (see section 2) and have consistently financed the utility over time.

Tanzania and **Zambia** invested the least per person living in urban areas. The OCCR in each country was also lower than in the other countries – below one in the case of Tanzania and just 1.03 in the case of Zambia (2011-15). The two countries also fared poorly on the qualitative assessment of financing modalities (Table 10), and Tanzania scored poorly on governance (Table 2).

In the case of **Uganda**, the tariff of Uganda's national utility (NWSC) exceeded \$1 since 2008 and it has maintained an OCCR in the range 1.2 to 1.4 over a ten-year period. Tariff revenue contributed to about 10% of total investments, higher than any of the other four countries. Uganda was least dependent on development partner funding, based on the way it was reported in the sector reports. Development partner loans to the government are passed on as grants to NSWSC. While NSWSC does not take on the loan obligation, this loan obligation rests with national government crowding out the availability of government funding for other needs (for example, investments in small towns and rural areas). Uganda scored second best on the qualitative indicators after Burkina Faso.

Kenya performed in the middle of the five countries in terms of investment per person living in urban areas. This was also the case for the OCCR and tariff revenue contribution to investment. Kenya's qualitative scores related to investment were worse than Burkina Faso and Uganda but better than Zambia and Tanzania.

*Inferences from the evidence***GDP per capita may not be a primary determinant of the level of investment in urban water and sanitation.**

The two poorer countries (Burkina Faso and Uganda) invested more per person living in urban areas than the three countries with a higher level of GDP per capita.

The tariff level and operating cost coverage ratio could be important factors in affecting the overall level of investment into the sector in the sense that a higher tariff and higher OCCR support the financial sustainability of the sector and enable a greater level of self-financing from the tariff.

There appears to be a positive association between financing modalities (Table 10) and the level of investment (Table 11). Possible reasons for this are elaborated and illustrated in Box 4.

Autonomy of action (free from direct political influence), professionalism in the planning and implementation of investments, and transparency in how funds are spent with clear reporting on investment outputs and outcomes (accountability) – are much more likely to attract higher levels of investment financing compared to those countries that are not able to create these conditions. (See Box 4.)

Box 4: Why autonomy, professionalism and transparency of the investment function matter

The evidence for development countries shows that countries that rely wholly on government grant financing are unable to invest at the levels required to sustainably improve access to water and sanitation service. Therefore, finance from development partners (grants and loans) and from banks (loans) are important sources of finance for the sector. It goes without saying that countries who are able to develop institutional arrangements for investment that have the following characteristics – autonomy of action (from direct political influence), professionalism in the planning and implementation of investments, and transparency in how funds are spent with clear reporting on investment outputs

and outcomes – are much more likely to attract higher levels of investment financing compared to those that are not. As noted in the text, this could account for the high levels of donor finance provided to both Burkina Faso and Kenya. In the case of Burkina Faso, the stakeholder oversight arrangement together with the professionalism and efficiency of the utility, are likely to have played a major role in supporting the confidence of financiers. In Kenya, professional investment agencies provided better (though partial) transparency in investments and fund mobilisation is hampered by the fact that there is no professional structure combining the work of the water services boards at the national level.

5 ACCESS TO PIPED DRINKING WATER

5.1 Definitions, data sources and data quality

5.1.1 Dimensions of access

There are six dimensions of access to water that are important: proximity, accessibility, reliability, quality, quantity and affordability.

Proximity refers to closeness to the place of residence. Water is heavy and collecting and carrying water is time consuming. In an urban context, a water point should preferably be within 200 meters.²³

For **accessibility**, meeting human rights criteria in an urban context requires non-discriminatory access. In practice this means a piped water connection at or close to the premises or a public standpost or kiosk that is nearby. Households can also obtain water from those neighbours that have a piped water connection. Provided this is a choice, that is, there is a public standpost that is available as an alternative, then households accessing water from neighbours would also be included as having access to piped water. The extent to which households have choice and actively choose or prefer to get water from a neighbour rather than a public standpipe is an empirical matter that can only be revealed through surveys. Some data shows that households without choice in this context are vulnerable to being exploited.²⁴

Water is needed daily and therefore **reliability** is important. When considering the results presented in this section, a lack of reliability of the piped water network could be a reason that survey data shows a lower percentage of the population primarily dependent on piped water for their primary supply of water for some countries compared to utility reported data. For example, in Uganda, the Annual Report 2016 reported that 20% of public standpipes were not active. Seasonal considerations might also be important in small towns where, during the rainy season, households might make predominant use of seasonal springs or streams for their water supply.

The **quality** of water provided needs to be able to be used for drinking purposes. In urban contexts, this typically means a regulated formal piped water supply.

The **quantity** of water available and used impacts on health outcomes. In urban contexts, a minimum quantity of 50 litres per person per day is considered to be necessary to support health.²⁵

Affordability: The costs for water and sanitation services should not exceed 5 percent of a household's income.

This study was not able to quantify and compare all of these dimensions of access in a systematic way and a comparison between countries on these dimensions is therefore not possible. For practical reasons then, the metric “**access to piped water**” is the only metric used in this report to measure access, noting that the metric has its limitations.

5.1.2 Definitions used in this report

A piped water supply refers to drinking water supplied from household connections, yard taps or public outlets connected to a piped water supply.

23) The Right to Water & Sanitation (South African Human Rights Commission, undated)

24) See, for example, Customer Identification Survey Pilot Report. Kericho Water and Sanitation Company Ltd, 2015.

25) “According to the World Health Organisation (WHO), between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise.” www.un.org/waterforlifedecade/human_right_to_water

This metric was chosen (1) because it is reported by both of the two primary sources of data used for the report, (2) because in the urban setting only access to piped water can be considered as “safe” and (3) because access to piped water through public outlets (not on premises) is a contribution to the realisation of this human right. This metric differs from the two other definitions used by JMP: access to an “improved water source” and “piped to premises” (water available from a piped network and point sources to the household premises).

Two primary sources of data were used in this report: data reported by the national ministry responsible for water (and/or the water regulator) and survey data reported by the Joint Monitoring Program (washdata.org). Data reported by the regulator typically is only for formal (regulated) service providers, whereas survey data may not distinguish between formal/informal or regulated/unregulated provision of piped water.

While this approach is admittedly limited, it is practical. Reliable and comparable data on other dimensions of access are not available for the ten-year period of assessment. Introduction of these measures would also introduce considerable complexity to the analysis.

5.1.3 Sources of data

JMP data is based on household survey data combined with census data for urban areas. For each country, the JMP estimates are based on fitting a regression line to a series of data points from household surveys and census data.²⁶

Country reported data is typically based on utility reported data that is aggregated for the country as a whole (all utilities or reporting entities), and is based on estimates of number of people per connection, by type of connection (piped to premises and communal standpipe) for people in the utility service area. The service area population is defined differently in different countries and may differ from the census definition of urban.

It is thus expected that there would be differences as a result of using a different population base as well as a different definition. In addition, the JMP survey data can show a wide dispersion across surveys.

It is unfortunately difficult to compare the JMP reported data with country reporting on access because of the different methodologies and data sources used, nevertheless both provide an important perspective on access.

Why use two sources of data for water access?

The sector or regulated data set is based on **inputs** (number and type of connections) together with assumptions on how many people use these inputs on a regular basis. The survey data used by JMP is based on statistically representative samples of urban households and on responses to questions on where households obtain their primary source of water, that is **outcome** data. Sampling and survey methodology, including question formats, may differ between surveys. The results between years show variations that may have to do with levels of confidence in the data rather than real changes in access.

Because each set of data has its own limitations, the use of both sets of data can provide a greater degree of confidence in access outcomes compared to using only a single source of data.

5.1.4 Data quality

The quality of access data matters. Data should be the basis for informed decision making regarding investments and technology choice. Good data is also needed to support accountability and transparency (key elements of good governance).

26) JMP data uses official urban population data. Some consider this data to underestimated urban population data. The data does not make a distinction between informal and formal services, and may include water from what might be considered ‘inadequate technology’ in urban areas.

A qualitative assessment of sector reported data quality is given in Table 14.

Table 14: Quality of sector reporting on access data

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Reliability of sector data	Moderate-high	Low	Moderate	Moderate	Moderate-low
Consistency of information, assumptions and definitions from different sources	Moderate-high	Low Contradictions & inconsistencies	Moderate Difference can be explained	Low Contradictions & inconsistencies	Low Contradictions & inconsistencies
Autonomy of sector data management	High	Moderate	High	Moderate-high	High
Transparency of data collection, processing, assumptions and definition	High (public disclosure)	Moderate	Moderate	Moderate-high	Low
Quantity of sector data & updated data available	Moderate-high	Moderate-high	Moderate-high	Moderate-high	Moderate
Accessibility of information to the public	Moderate-high	Moderate-high	High: Sector reports data the public is able to comprehend	High: Sector reports data the public is able to comprehend	Moderate
Data quality (access)	83%	42%	71%	63%	38%

Source: Country case studies

Burkina Faso performed the best, then Kenya and Zambia. Access data quality, as reported by the sector, was not as good for Tanzania and Uganda. Improving the quality of access data is important for the reasons given in Box 5.

Box 5: Improving the quality of data on access to water services

Without credible data on access to water services, across all of the important dimensions (proximity, accessibility, affordability, quality, quantity and reliability) it is difficult to measure improvements in access to water and sanitation services with any degree of confidence. A credible system should use and reconcile both input data (based on number of active connections together with reliability, quantities provided, quality of water supplied etc.) and outcome data (surveys of household experiences in accessing water). Important strides have been made in improving the quality of data collected and reported by Ministries, utilities and regulators in the five country case studies through sector reports, utility annual reports and regulator reports. Nevertheless, there is still room for improvement in some of the case study countries, particularly in the following areas:

- More transparency in assumptions and methodologies employed to assess access.
- Reconciliation of input data and outcome (survey) data.
- Third party verification of collected and reported data.
- More use of longer timeframes (ten years and more) in reporting to understand sector trends
- Improvements in reporting formats
- Making reports available in a timely manner (within 6 months of the financial year end).

In the case of Burkina Faso, a key innovation is the use of an oversight committee to monitor performance that includes key sector stakeholders, together with third party verification of financial and performance reporting. This setup appears to be a good substitute for an independent regulator where one does not exist.

5.2 Access to urban piped water

5.2.1 Access to piped water in 2015

Country reported and JMP data on access to piped water in 2015 is shown in Table 15.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Country Reported data - 2015	89%	71%	59%	83%	50%
JMP data (access to piped water) - 2015	76%	56%	70%	66%	59%
variance (country reported versus JMP data)	13%	15%	-11%	17%	-9%

Table 15: Access to urban piped water, 2015

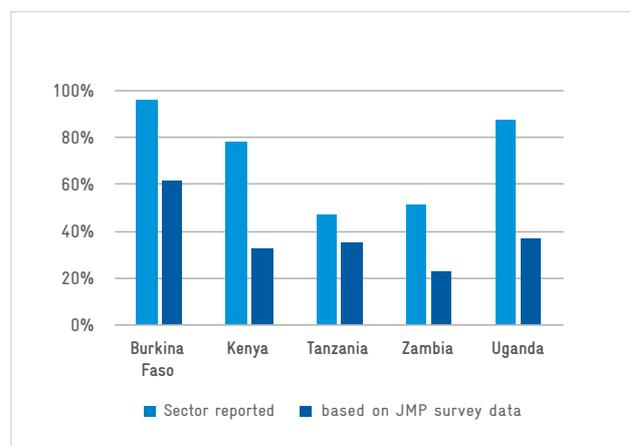
Source: Country case studies

Burkina Faso performs better than the others (on both Country Reported and JMP datasets).

The story for the other countries is mixed. The large variances in the country-reported and JMP data are difficult to reconcile for reasons explained in section 5.1 and in more detail in the specific case studies. For example, country reported access is higher than JMP reported access for Uganda because the rural populations that are served by NWSC are considered as urban and included in the numerator, but the denominator (urban population to be served) is not adjusted. In Kenya, the opposite is the case – the rural populations served by the regulated ‘urban’ providers are included in the numerator, and these areas are also included in the denominator (based on a density definition).

5.2.2 Additional persons served with piped water relative to 2005 population

The increase in the urban population with access to a piped water supply relative to the urban population in 2005 is shown in Figure 13, based on sector reporting and JMP survey data respectively.



Source: Case study reports

Figure 13: Additional persons served with piped water 2005 to 2015 as a % of 2005 urban population

Performance (increase in access to piped water) based on JMP survey data is lower across all of the five countries compared to sector reported data. The differences are large in four of the five countries, ranging from 28 (Zambia) to 51 (Uganda) percentage points and lower for Tanzania (12 percentage points).

Burkina Faso performs better than the other four countries irrespective of the data source used (sector reporting or survey data). Uganda performs second best (also with both sources of data) but performance based on the JMP data set is much lower and is not much better than for Kenya and Tanzania (37% versus 33% and 35% respectively). Kenya performs third best based on sector reporting but fourth best on JMP survey data.

5.2.3 New persons served with piped water relative to urban population increase

Data on new persons served (survey based and sector reported) for each country is given in Annex 3 and summarised in Table 16.

Table 16: New persons served relative to growth in urban population (2005 – 2015)

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
New persons served 2005–15 (Mio people) ¹ (survey based / sector reported)	1.8 / 2.6	1.4 / 3.7	2.5 / 3.6	1 / 1.8	3.4 / 3.6
Increase in urban population 2005–2015 (Mio people) ²	2.5	2.6	4.1	2.2	7.2
As % of new people in urban areas (survey based / sector reported)	72% / 104%	54% / 142%	61% / 88%	45% / 82%	47% / 50%

Source: Country case studies.

Note: 1) The range arises because of the different sources of access data. 2) Urban populations as officially reported, may differ from sector reporting.

5.2.4 The change in the urban population without access to a piped water supply

Data on the population without access to piped water (survey based and sector reported) for each country is given in Annex 3 and summarised in Table 17. More detailed explanations are provided in the individual case study reports.

Table 17: The number of people without access to a piped water supply (2005 – 2015)

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Population without access to piped water 2005 (Mio people) ¹ (survey based / sector reported)	0.6 / 1.3	1.5 / 2.6	1.9 / 7.4	1 / 1.6	3.1 / 3.3
Population without access to piped water 2015 (Mio people) ¹ (survey based / sector reported)	1.5 / 0.5	2.4 / 2.4	3.5 / 7.1	2.2 / 1.1	6.9 / 7.8
Change in the number of people without access to piped water ²	Increased or decreased	Likely Increased	Likely Increased	Increased or decreased	Increased

Source: Country case studies.

Note: 1) The JMP survey data is presented first in each range. The range arises because of the different sources of access data.

2) There is considerable uncertainty as to the extent to which the unserved population increased or decreased, depending on data source.

5.2.5 Increase in piped water connections

Increase in water connections and kiosks

It is ultimately the number (and type) of piped water connections and their proximity and accessibility to households that enables households to have access to piped water. Therefore, the growth in the number of connections is important. Of course, reliability is also important as previously mentioned. It is also important that the public standposts or kiosks are available to the public and have not been ‘privatised’, that is, they are accessible.

Unfortunately, good and consistent data on the number of kiosks, their status (public or not, regulated or not) and their functioning (active or not) is not available consistently across the countries, making the comparisons difficult. **The presence of a practical implementation concept for managing kiosks effectively could be a good proxy indicator for the extent to which countries take pro-poor service provision seriously.** This is discussed in Section 5.4 below.

Based on the limited data available, the relative increase in the number of individual water connections and kiosks (or public standposts) is shown in Figure 14 to give an indication of relative performance in the growth in the number of connections by type between countries.

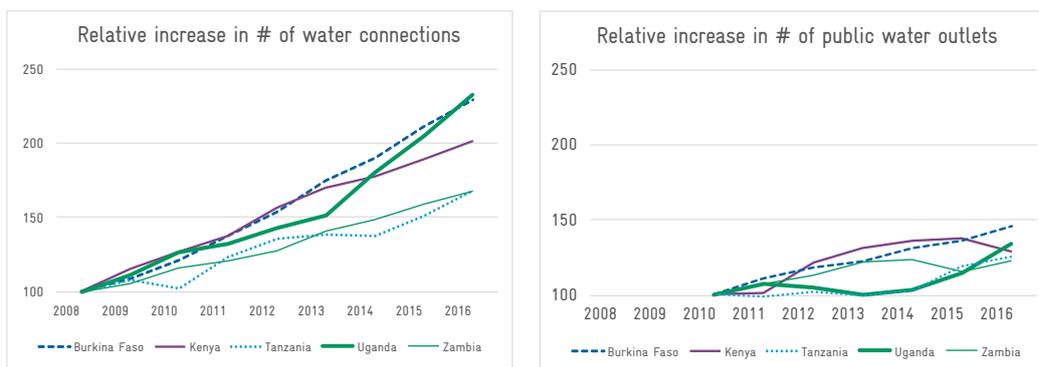


Figure 14: Relative increase in number of water connections (left) and kiosks (right)

Source: Country case studies. Note: 2008 = 100 for water connections; 2010 = 100 for kiosks/public standpipes. Missing data for 2008 & 2009.

Burkina Faso and Uganda performed better than the others. Note, however, that the very large increase in the number of connections for Uganda from 2013 onwards is largely the result of an expansion of the area of supply to new towns.

The relative growth in the number of public water outlets was generally less than the relative growth in the number of individual connections. This possibly indicates an inadequate focus of attention on public water outlets in some countries.

Access via public standpipes versus individual household-level connections

The share of the population getting water from public standposts or kiosks is shown in Figure 15 together with the overall level of access to piped water, based on sector reported data.

While, according to the sector reported data, Burkina Faso, Uganda and Zambia all have relatively high levels of access to piped water (close to or above 80%), Burkina Faso with the highest share of piped water has a relatively lower share of the population with access to piped water using public kiosks, whereas Zambia and Uganda rely more on public standpipes to extend access, with over 40% of the population with piped access using public standpipes or kiosks in the case of Zambia and close to 50% in the case of Uganda. Uganda's report on public standpipes could be overstated if it does not take into account standpipes that are not working and if reported standpipes are not accessible to the public. These problems may also apply in other countries too.

Figure 15: Share of population getting access to water from kiosks/standposts versus overall access to piped water



Source: Case study reports. Sector reported data.

Tanzania and Kenya have a low percentage of the population that is reported as having access to piped water (a bit over 50% for Tanzania and 60% for Kenya) and also a low share of the population using public standpipes/kiosks. **This data suggests that both Tanzania and Kenya could improve access through a strategy of increasing the number of well-managed kiosks.**

5.3 Relationship between investment and access to water

The relationship between investment in urban water and sanitation investment and the increase in the number of people served with water (expressed as a percentage of the 2005 urban population) is shown in Figure 16. The expected positive relationship is evident. Burkina Faso performed better irrespective of the source of data for reporting on access, and Zambia and Tanzania perform relatively poorly. The relative performance of Kenya and Uganda depend to a large extent on which source of access data is used – JMP survey-based data or sector reported data. Kenya and Uganda both perform well if sector reported data is used but perform relatively poorly (on a par with Tanzania) if JMP data is used.

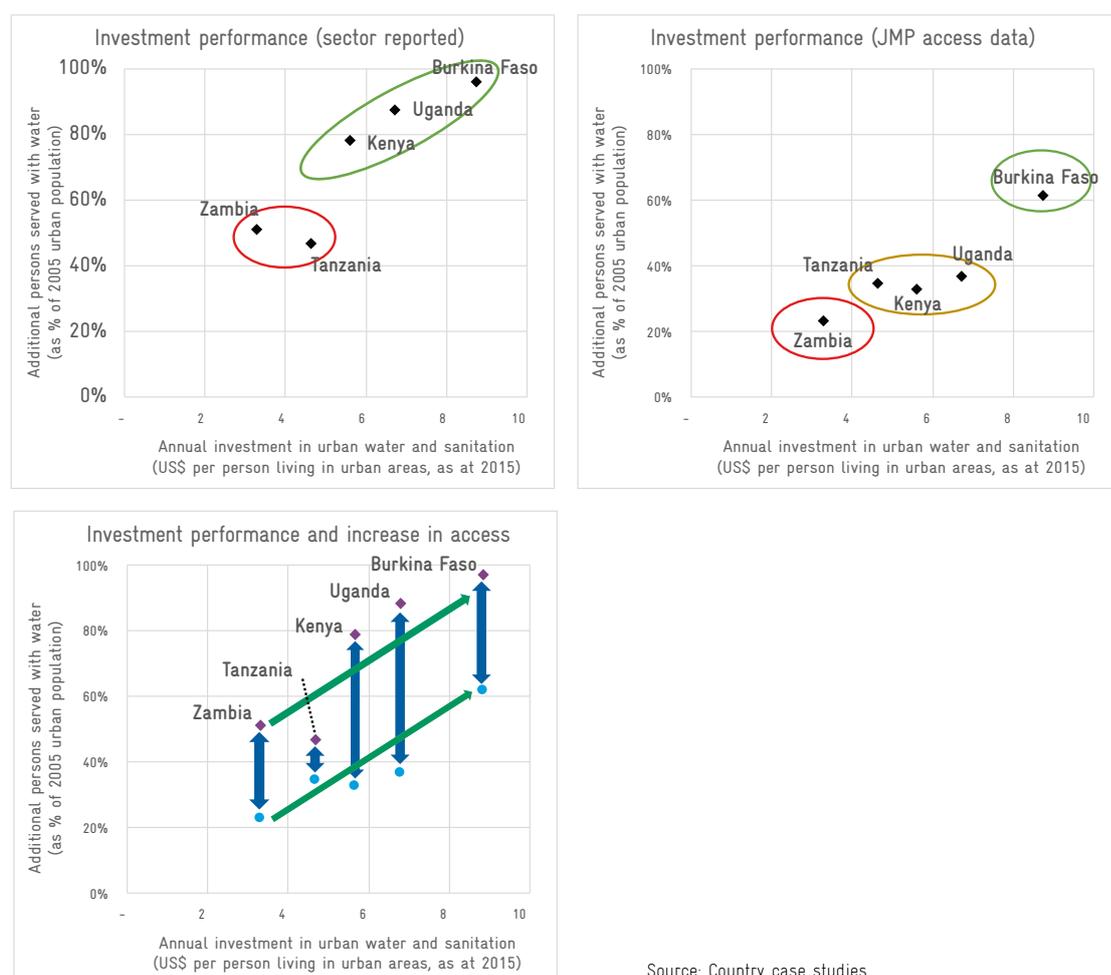


Figure 16: Investment performance and increase in persons served (as percentage of 2005 urban population)

A summary of the key quantitative parameters on financial performance, investment and access is given in Table 18, arranged in order of relative performance.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
GDP per capita (at PPP, US\$, 2016)	1 595	1 687	2 926	3 636	2 583
OCCR (2011-15)	1.18	1.28	1.09	1.03	0.99
Self-financing from water revenue	7%	10%	4%	0%	0%
Investment 2005-15 (as %GDP)	0.39%	0.17%	0.09%	0.10%	0.17%
Investment per person (US\$ per annum)	8.7	6.7	5.6	3.3	4.6
New persons served (% of 2005 urban pop)	96%	88%	78%	51%	47%
Piped water access (2015) – sector reports	89%	71%	59%	83%	50%
Piped water access (2015) – JMP	76%	56%	70%	66%	59%

Note: Colour formatting based on a 3-colour scale for each line, with green high (best), yellow middle (moderate) and orange low (worst). Source: Country case studies

A target for countries to invest at least 1.2% of GDP just on sanitation by 2018 was recommended to AMCOW.²⁷ Burkina Faso, the best performing country, invested only 0.39% on both water and sanitation.

The positive association between financial performance, investment performance and access is evident from Table 18.

Table 18: Summary quantitative assessment

27) Investment in Sanitation to Support Economic Growth in Africa: Recommendations to the African Ministers' Council on Water (AMCOW) and Ministers of Finance. Yolande Coombes, Sophie Hickling and Mark Radin. May 2015. WSP World Bank.

5.4 Pro-poor orientation of service providers and access

Hypothesis: *Water service providers and regulatory systems with a clear pro-poor orientation are able to provide more previously underserved people with access to services per million dollars invested in a system than water utilities without such an orientation*

A summary of the qualitative assessment of pro-poor indicators is presented in Table 19.

Table 19: Qualitative assessment of pro-poor indicators

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Pro-poor focus of sector policy / strategy / legislation	High	High	High	High	High
Pro-poor regulatory system / regulation	Moderate	Moderate	Moderate-high	Moderate	Moderate-low
Pro-poor orientation of sector investments (funding of last-mile infrastructure or low-cost technologies for WSS)	Moderate-high	Moderate	Moderate-high	Moderate	Low
Pro-poor orientation of service delivery (formal service providers, utilities)	Moderate-high	Moderate-low	Moderate	Moderate	Moderate-low
Accessibility and Non-discrimination of access to WSS (use of public standpipes to extend access)	Strong	Moderate	Moderate	Moderate	Weak
Standards and implementation concepts for WSS in low-income areas	High	Moderate	High	Moderate-high	Low
Overall score	86%	61%	79%	68%	39%

Source: Country case studies

Good pro-poor policies, but with variable translation of policies into practice

While all five countries have strong policies with respect to the human right to water, the translation of these policies into practice is at various stages of effectiveness. Overall (assessing all of the pro-poor indicators), Burkina Faso performs the best, then Kenya. Uganda and Zambia perform moderately and Tanzania performs the poorest.

Practical implementation concept for pro-poor delivery of services

An important distinguishing feature between countries is the extent to which standards and practical implementation concepts have been developed and implemented for provision of water to poor households. For example, to what extent have countries paid attention to and prioritised the effective provision of water to poor communities through public standpipes that are sustainably managed, reliable and make affordable water available? Very little attention has been paid to this in Tanzania, whereas a lot of attention has been paid to this in Burkina Faso. In the case of Uganda, Kenya and Zambia, the story is mixed. In Uganda, while some efforts have been made through the institution of a pro-poor unit in NWSC, the practical management of standpipes is problematic in many areas, with some standpipes effectively privatised and others not functioning. Some 20% of standpipes were reported to be not active in 2017. In Kenya, concepts for the development and management of kiosks have been developed by the Water Services Trust Fund but overall data on the number of kiosks and their status is poor and this is not reported in the regulator's annual sector performance report. In Zambia, the Devolution Trust Fund also developed standards and implementation concepts for kiosks. However, reporting on the number and status of kiosks by the regulator is also poor.

Financing incentives and pro-poor access to services

The extent to which financing modalities specifically focus on the poor is shown in Table 20.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Incentives for external financing agencies to invest in low-income areas (last mile infrastructure)	Strong	Moderate	Strong	Strong ¹	Weak
Competitive pro-poor allocation of financing	No	No	Yes	Yes	No

Note: 1) For assessment period.

Source: Country case studies

Table 20: Financing incentives related to pro-poor investments

Kenya and Zambia, both with decentralised provision of water and sanitation, developed mechanisms for the **competitive allocation of financing** to reach poor unserved communities in the most cost-effective way – the Devolution Trust Fund and the Water Services Trust Fund respectively. The Devolution Trust Fund in Zambia has been discontinued for reasons that are not apparent. The Water Services Trust Fund in Kenya has experienced governance problems but continues to function with development partner support.

In Burkina Faso, **the financial compact between financing agencies and government places a strong emphasis on extending services to the poor and this is translated into practice.**

5.5 Relationship between qualitative indicators, investment and access

A qualitative assessment was undertaken on 27 indicators for each country in four areas.

Sector financing and investment refers to all funding sources and financing mechanisms used for capital investment and coverage of operation and maintenance cost of infrastructure (tariffs, transfers, loans, and taxes). This includes, for example, mechanisms for investment planning, and the competitive allocation of funding into infrastructure applied in the sector. See Section 3.

Pro-poor orientation of the sector refers to the priority attributed to low income and peri-urban population groups. See Section 5.4.

Sector information and reporting refers in this assignment to the national systems and public reports on urban WSS coverage. In most countries different sources of information / reporting formats co-exist, in particular data reported by a) national regulatory authorities, b) national water utilities, c) sector review reports, d) national statistics offices, e) WHO/ UNICEF Joint Monitoring Programme (JMP). See Section 5.1.

Sector Governance concerns the informal and formal rules of the game, that is, the interactions and institutionally defined relationships between sector institutions within the political, legal and institutional framework. This also includes corruption and political interference with the operational decisions of sector institutions like regulators and service providers. **Sector governance significantly affects the efficiency and effectiveness of investments, performance of institutions and the quality of service delivery.** See Section 2.

The overall outcomes are summarised in Table 21 below.

Table 21: Qualitative assessment summary

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Financing & investment	94%	50%	53%	28%	17%
Pro-poor orientation	86%	61%	79%	68%	39%
Governance	70%	35%	55%	50%	35%
Access data quality	83%	42%	71%	63%	38%
All areas	85%	50%	64%	50%	31%

There appears to be an association between the summary quantitative assessment (Table 18) and the qualitative assessment (Table 21) with Burkina Faso scoring well in both domains and Tanzania scoring relatively poorly in both domains. On the other hand, Uganda scored relatively well in terms of the quantitative performance (Table 18) but not well on the qualitative assessment particularly with respect to governance and access data quality.

5.6 Emerging findings and key messages

Bearing in mind the methodological caution (Box 1), the following tentative findings could be made.

Significant overall increase in the number of people served. Irrespective of what data source was used (survey data or sector reported data), there was a significant increase in the number of people served in urban areas in each of the five countries over the period 2005 to 2015. **Without sector reforms it is unlikely that such significant increases would have been realised.**

Positive relationship between investment and access. Irrespective of the data source on access (sector reported or survey based), there appears to be a positive relationship between investment and access. The higher investment in Burkina Faso translated into higher access and the relatively low investment in Zambia related in a low level of improvement in access. This is expected and it would be concerning if this were not to be the case. The implications of this are explored in Section 7.

Positive association between investment, access and the qualitative assessment. Overall, there is a positive association between the qualitative assessments (summarised in Table 21) and investment and access (summarised in Table 18). The implications of this are explored in Section 7.

Diverging trends in the two data sets. It is nevertheless concerning that the trends in access between the two data sets – sector reported and survey data – are in different directions in four of the five countries.

Lack of reconciliation between data sets. It is unfortunate that the national government department responsible for water and/or the water regulator do not appear to have attempted and/or have not reported on a detailed reconciliation of input and outcome data to better understand sector trends.

A need to show progress? It is possible that sector reported data, based on inputs, is influenced by a need to show improvements in percentage access to water services – four of the five countries reported improvements in percentage access to water whereas survey data in these countries showed a decrease in percentage access.

Number of people without access is growing. Overall, the number of people without access to piped water in the five case study countries is likely to be growing.

Provision of access by public water outlets is an important strategy to increase access. A significant share of the urban population in the case study countries rely on public standpipes or kiosks for access to water – between 20% and 50%.

Key messages

(these are further explored in Section 7)

Improving data on access (See Box 5)

- ✚ **Countries should regularly verify, through surveys, the number of people served by utility outlets in order to improve quality of access data.**
- ✚ **Countries need to improve sector information systems to obtain more accurate information and improve reporting.**

Accelerating access

- ✚ **Accelerating access to piped water will not be possible without the effective use of public outlets** (between 20% and 50% of the population depend on shared / public outlets in the case study countries).

6 SANITATION

The primary focus of this study was on piped water supply. There are a number of important differences between water and sanitation. Access to the piped sewer network is very much lower than is the case of water and near universal access to a sewer network is not a realistic goal for many Sub-Saharan African countries in the medium term. In a context where access to piped sewer networks is very limited, the major investment made in improved sanitation is at the household level -- this is typically private (household) investment. Arrangements for the safe management of faecal waste typically involve multiple institutions – local government, the water utility and health authorities. Financing investments and funding operations is challenging in the absence of a product that can be readily sold. Consequently, urban sanitation is complex and a study of this nature could not aspire to do justice to the subject. In light of this, this section provides a very brief summary of some key aspects relevant to sanitation.

6.1 Sector reforms and sanitation

The sector reforms generally included sanitation within their scope. A summary of key sanitation reform events is presented in Table 22.

Table 22: Key sanitation reform events

1985	ONEA (Burkina Faso). The mandate includes supplying water and a sewerage system for grey and black waters in urban, including urban low income areas as well as managing faecal sludge management / on site sanitation.
1994	The sanitation surcharge is used to finance the Strategic Sanitation Plan of Ouagadougou (Burkina Faso)
1995	In Uganda, the National Water and Sewerage Corporation (NWSC) was given the mandate to provide water supply and sewerage services in the large towns, in terms of its own Act.
1997	Water Supply and Sanitation Act (Zambia) devolved responsibility to local government but provided for establishment of regional commercial utilities with responsibility for water and sanitation.
1999	In terms of the Uganda Water Policy, both the health and water ministries have mandates related to sanitation
2004	Kampala Sanitation Master Plan study (Uganda)
2006-10	In Uganda, four Water and Sanitation Development Facilities (WSDFs) established with mandate that included investment in faecal treatment facilities in small towns
2007	Introduction of a sanitation surcharge on water bill to fund sanitation projects (Zambia)
2009	Water Supply and Sanitation Act (Tanzania) provided for the establishment of Water Supply and Sanitation Authorities whose functions included development of sanitation works, the implementation of new sanitation projects, public health education, liaison with local government, proposing sanitation tariffs,
2010	Responsibility for water supply and sanitation devolved to new county governments (Kenya). Both the health and water ministries have mandates related to sanitation. The health ministry develops sanitation policy and intends to establish a to sanitation fund.
2011-17	An urban sanitation improvement program was piloted and scaled by the WSTF. The program addresses the full sanitation chain and requires households/landlords to cover a portion (intended to be 50%) of the costs of facilities (including on-site toilets) and the emptying, transport and treatment of human waste (Kenya)
2016	Elaboration of a regulatory framework for sanitation including faecal sludge management (Zambia)
2017	Sanitation Fund proposed (Uganda)

6.2 Sanitation arrangements

Key features of the sanitation arrangements in each country are set out in Table 23.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Lead national water ministry also responsible for sanitation	Yes	Yes	Yes	No ¹	Yes
Urban water utilities also responsible for sanitation	Yes	Yes	Yes	Yes	Yes
Extent of urban water utilities actively involved with transport and treatment of faecal sludge, and sanitation promotion.	High	Moderate	Moderate	Moderate	Low
Sanitation levy / fund in existence to fund sanitation investments	Yes	No ²	No	Yes	No
Practical concept for faecal sludge management developed and used	Yes	No	Yes	Yes	No

Note: 1) During period of assessment, water and sanitation was responsibility of local government ministry. This has recently changed.

2) A sanitation fund has been proposed in Uganda.

Table 23: Key features of sanitation arrangements

Burkina Faso is the most far advanced with respect to the management of sanitation in urban areas even though (and perhaps because) the extent of the sewer network is very limited, compared to the other countries. ONEA established a sanitation levy to fund investments in sanitation in 1994, however, the levy is too low to raise the necessary resources.

In contrast, arrangements for the management of urban sanitation are least developed in **Tanzania**. Responsibility for sanitation was given to the urban water and sanitation authorities relatively late (2009).

Zambia has a sanitation fund and practical concepts for implementation of urban sanitation. **Kenya** has also developed a practical concept to scaling improved urban sanitation management arrangements, but does not have a dedicated sanitation fund. The Water Sector Trust Fund is used, and this is highly dependent on development partners.

In **Uganda**, a sanitation fund has been proposed. At this stage, practical implementation concepts are lacking for NWSC but have been developed for the Water and Sanitation Development Facilities. The latter have focused on creating treatment facilities for the treatment of faecal sludge.

6.3 Investments in sanitation

Very little data is available on investments in sanitation. The data presented in section 4 included investments in both water and sanitation because these are not separately reported across all five countries. Public investments on sanitation infrastructure are typically for 'standard' infrastructure (sewer networks and treatment works) as well as facilities for the transport and treatment of faecal sludge. Details allowing a comparison of investments across countries over the period 2005 to 2015 was not available. Other spending is on soft aspects of sanitation, naming sanitation promotion.

6.4 Access to sanitation

6.4.1 Sanitation definitions and sources of data

Improved sanitation is access to basic sanitation and limited sanitation (JMP 2017).

Basic sanitation refers to use of improved facilities that are not shared with other households (JMP 2017).

Improved sanitation facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs (JMP 2017).

Safely managed sanitation refers to use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite (JMP 2017).

Reporting on **safely managed sanitation** through JMP has only recently commenced and thus it is not possible to track progress on access to safely managed sanitation over the period of analysis – 2006 to 2015, and is not available for 2015 for most of the countries.

For these reasons, only access to improved sanitation (JMP data) and access to sewer connections (sector reporting) are reported on.

6.4.2 Access to improved sanitation

Summary JMP data is shown in Table 24.

Table 24: Access to improved sanitation (JMP data)

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
2005	83.1%	71.7%	74.8%	71.1%	38.3%
2015	87.8%	71.0%	77.0%	69.3%	70.9%
Change (% points)	5%	-1%	2%	-2%	33%

Source: Country case studies

Burkina Faso has substantially higher access to improved sanitation (88%), and **Kenya** second highest (77%) compared to the other three countries (about 70%).

Tanzania stands out as doing much better than the other countries in terms of progressive improvement over the period. The much better progress, starting off a much lower base (38% improved sanitation) in 2005, could not be specifically attributed to the sector water and sanitation program which did not include separate reporting on investments in sanitation. The good outcome therefore must be the result of household investment in improved sanitation facilities (VIP toilets, slabs etc.) and is not the result of public investment. There was no public investment in toilet infrastructure. Investments in the first phase of the sector water and sanitation program comprised limited investments in oxidation ponds in urban areas outside of Dar es Salaam, some sewer systems and sanitation promotion activities. It is not obvious why the progress in Tanzania according to the JMP reported data was so much better than for the other countries and the 2005 data point could be an anomaly.

This data does not reflect the extent to which the sanitation chain for on-site sanitation installations is managed. This is a significant challenge because the vast majority of the urban population is dependent on it (see below).

6.4.3 Access to sewer connections

A summary of access to sewer connections is given in Table 25. Progress with respect to access to sewer connections lags behind in all countries, compared to water.

	Burkina Faso	Uganda	Kenya	Zambia	Tanzania
Sewer connections ¹	1 600	21 000	344 000	211 000	41 479
Water connections	401 000	529 000	1 035 000	423 000	430 000
Ratio (water / sewer conn)	1 in 248	1 in 25	1 in 3	1 in 2	1 in 10
Ratio (population / sewer connection)	3 378	300	34	31	407
% access ²	0.2%	3%	23%	25%	2%
Date	2016	2017	2015	2015	2014

Table 25: Access to sewer connections

Source: Sector reporting and Country case studies.

Notes: 1) Data has been rounded. Data does not include septic and conservancy tanks. 2) Assuming 8 people per sewer connection.

Access to the sewer network declined in all five countries.

In **Burkina Faso**, there was one sewer connection for 248 water connections in 2015. A proper sewer network only exists in some central parts of Ouagadougou and a very small network in a secondary town. Possible reasons for the low sewer coverage are that water is scarce and the country is flat (requiring pump-stations that are expensive to run and maintain). The level of investments in sewer networks is relatively small when compared to water supply infrastructure. The focus of ONEA is also on expanding access to on-site sanitation facilities and faecal sludge treatment facilities (34 planned until 2030). ONEA reports access to sanitation of 40% in 2015 (compared to 15% in 2007). ONEA's definition of the indicator comprises access to VIP latrines, manual flush toilets, rehabilitated latrines, septic tanks and connections to a sewer network. Emptying services and treatment of faecal sludge are not considered yet by the definition of access. However, the sanitation access definition is currently being revised to consider the full sanitation chain.

In **Kenya**, there was one sewer connection for every three water connections in 2016 compared to a ratio of 1 to 2.5 in 2009. Utility or regulator reported data on access to sanitation (beyond sewer access) is not available. In addition to standard investments in sewer extensions and wastewater treatment (in the main urban areas), an urban sanitation improvement program has been piloted and then extended by the WSTF. The program addresses the full sanitation chain and requires households/landlords to cover more than half of the costs of facilities (including on-site toilets) and the emptying, transport and treatment of human waste.

In **Tanzania**, there was one sewer connection for every 10 water connections in 2016 compared to a ratio of 1 in 9 in 2007. Utility or regulator reported data on access to sanitation (beyond sewer access) is not available.

In **Uganda**, there was one sewer connection for every 25 water connections in 2017 compared to a ratio of 1 to 7 in 2003. Only 16 of 170 towns covered by NWSA in 2015 had centralized sewerage systems usually covering only small parts of the town (Sector report 2015). The Ministry reported access to improved sanitation in urban area to be 85% in 2016. In contrast, JMP reported improved sanitation of 71% in urban areas in 2015, comprising 28% with a basic service and 43% with a limited service as per the JMP definitions. The 71% improved sanitation in 2015 represented no change from 2005, although the absolute number of people with and without an improved service would have

increased as a result of urban population growth. GIZ (2016) noted that many of the toilets cannot be emptied, therefore they cannot be regarded as sustainable sanitation, and that the sanitation service chain (collection and treatment) is missing for a large share of the toilets.

In **Zambia**, progress with respect to access to sewer connections lags behind water. According to JMP, access to sanitation connected to a sewer decreased from 21,0% in 2007 to 16,2% in 2015. According to NAWASCO the sanitation coverage improved remarkably from 29,1% in 2007 to 60,5% in 2015. Sanitation Coverage is very different within commercial utilities; Lusaka Water reports the highest sanitation coverage at 74%, North-Western Water has only a coverage of 18%. JMP on the other hand reported a slight decrease in access to improved sanitation from 70,1% to 69,3% in the same period. This indicates that investments in sanitation do not keep up with investments in water and sanitation and also not with the increase in the population. Furthermore, investments in sewerage are focused mainly on Lusaka.

6.5 Emerging findings and implications

Better reporting on sanitation investment is needed in all countries. Better reporting is needed on sanitation investments, and this reporting should be separate from investment in water supply and differentiate between sewerage and on-site sanitation. The lack of reporting and data reflects the lack of prioritisation of the sanitation sector as compared to water.

Inadequate investment. A target for countries to invest at least 1.2% of GDP just on sanitation by 2018 was recommended to AMCOW.²⁸ Actual investments were a very small fraction of this. Water accounted for the lion's share of the investments reported in Table 11.

Low and declining access to sewer networks. Consequently, there is low and declining access to sewer networks in all five countries.

High dependence on on-site sanitation. There is a large and growing dependence on on-site sanitation systems in all countries. Access to sewer connections is decreasing.

Inadequate knowledge on the status of safe sanitation. Reporting on safe sanitation, which includes safe management of faecal waste has just begun. At this stage there is inadequate information available. Efforts are underway to address this as part of the SDG reporting.

Poor management of faecal waste imposes high health burden and costs. Poor management of the sanitation chain, particularly the safe management of faecal waste, poses a significant health burden and costs: "estimates indicate between 1% and 5% of Africa's GDP is lost every year due to inadequate provision of basic sanitation services".²⁹

Promising faecal sludge management initiatives need to be refined, adapted and scaled. Existing efforts to improve the management of the sanitation chain (particularly related to on-site sanitation and the management and transport and treatment of faecal waste) need to be refined, adapted as necessary to new conditions and scaled.

A sanitation levy together with a dedicated sanitation fund offer an opportunity to increase investment. A levy on the water tariff provides a mechanism to raise funds for investment in sanitation. This revenue should be ring-fenced in a sanitation fund and used to support investments in sanitation. Lessons from existing initiatives, for example in Burkina Faso, should inform the design of these mechanisms in new contexts.

The **fragmentation of sanitation governance** makes it hard to create clear accountability for performance and outcomes.

28) Investment in Sanitation to Support Economic Growth in Africa: Recommendations to the African Ministers' Council on Water (AMCOW) and Ministers of Finance. Yolande Coombes, Sophie Hickling and Mark Radin. May 2015. WSP World Bank.

29) Ibid.

7 SUMMARY FINDINGS RELATED TO STUDY HYPOTHESES

7.1 Financing strategies and mechanisms

Hypothesis

The existence of country financing strategies and mechanisms matters: The impact of a million dollars invested in a system – in terms of additional persons served – is higher, if both country financing strategies and mechanisms and aid modalities and incentives set by donors reinforce each other and aim at the expansion of service coverage in underserved urban areas (compared with situations, where either country financing strategies and mechanisms are not in place or, in cases where they are in place, where they are not reinforced by aid modalities and incentives set by donors).

Finding

The study found that there was a positive association between financing modalities (summarised in Table 10), the level of investment (summarised in Table 11) and outcomes (summarised in Table 18). The qualitative factors assessed for financing modalities include the implementation of a long term sector financing model, professionalisation of the financing function, autonomy of investment decision making, the extent and effectiveness of commercialisation of water providers, and quality and transparency of investment data and the extent of accountability for investment outcomes. This suggests that the design and functioning of the investment institutional eco-system is important, particularly when different aspects of the institutional setup and incentives reinforce each other such as is the case in Burkina Faso, for example. The sound and relatively straight forward structures and incentives in Burkina Faso enabled a high level of investment from development partners and other financiers. On the other hand, the limited interest of development partners to finance the second phase of the water sector development program in Tanzania shows that, without a functional institutional set-up for investment, the commitment and confidence of development partners declines.

In summary, *countries able to develop institutional arrangements for investment that have the following characteristics – autonomy of action (freedom from undue political influence), professionalism in the planning and implementation of investments, and transparency and accountability in how funds are spent with clear reporting on investment outputs and outcomes – are more likely to attract financing than countries that do not have these characteristics.*

Implication and action

An approach that seeks to strengthen the financing ecosystem in a country, paying attention to professionalisation, isolation from undue political interference (good governance, see Section 7.4), commercialisation of the service providers (see Section 7.3), and accountability and transparency in reporting on investments and outcomes (see Section 7.4), is appropriate and should be continued.

Further findings in relation to financing and investment are set out in Section 8.3.

7.2 Pro-poor orientation of service providers

Hypothesis

Pro-poor orientation matters: Water service providers and regulatory systems with a clear pro-poor orientation are able to provide more previously underserved people with access to services per million dollars invested in a system than water utilities without such an orientation.

Findings

While all five countries have strong policies with respect to the human rights to water and sanitation, the translation of these policies into practice is at various stages of effectiveness.

An important distinguishing feature between countries is the extent to which standards and practical implementation concepts have been developed for provision of water to poor households and implemented.

Public water outlets. The study found that the extent to which countries have paid attention to and prioritised the effective provision of water to poor communities through public water outlets that are sustainably managed, reliable and make affordable water available has an important impact on the access to water by poor people. Very little attention was paid to this in Tanzania, only recently the regulator EWURA published guidelines on the operation of water kiosks. A lot of attention was paid to this in Burkina Faso, where a standardized and regulated model of water kiosks plays a major role in service provision. In the case of Uganda, Kenya and Zambia, the story is mixed. In Uganda, while some efforts have been made through the institution of a pro-poor unit in NWSC, the practical management of standpipes is problematic in many areas, with some standpipes effectively privatised and others not functioning. Some 20% of standpipes were reported to be not active in 2017. In Kenya, concepts for the development and management of kiosks have been developed by the Water Services Trust Fund but overall data on the number of kiosks and their status is poor and this is not reported in the regulator's annual sector performance report. In Zambia, the Devolution Trust Fund also developed standards and implementation concepts for kiosks, however, reporting on the number and status of kiosks by the regulator is also poor.

Pro-poor financing mechanisms were established in Zambia (Devolution Trust Fund) and Kenya (Water Sector Trust Fund, Box 7). In Kenya, the pro-poor Trust fund accounted for 7% of sector investments and about 7% of new connections and a third of the new kiosks, thus disproportionately contributing to new connections and access. In Zambia, the pro-poor Trust fund accounted for about 10% of sector investment. However, since 2016 the DTF has lacked funding contributions from development partners and is mainly winding down its operations, for reasons that have not been publicly stated.

Box 6: The Water Sector Trust Fund in Kenya

The 2002 Water Act provided for the establishment of a Water Sector Trust Fund. A Trust Deed was created in 2004 and the fund operationalised in 2005. The Fund is governed by a Board of Trustees appointed by the Cabinet Secretary and has a staff of 67 people. Funding is provided from the national government budget and development partners, with annual funding growing from about \$200 000 in 2008 to \$11 million in 2016, accounting for 7% of sector investment in the period 2006 to 2016. More than 80% of the WSTF funding has come from development partners. The Fund funds water resources and urban and rural services.

Funds under the urban component are allocated competitively based on calls for proposals. Of the \$47 million invested in urban water and sanitation services, \$34 million was invested in water, which was reported to benefit 1.8 million people at a cost of \$18 per capita, adding 646 kiosks, 34 500 water connections and about 1 700 km of network. These accounted for 7% of the total number of new connections added in the period 2008 to 2016, and about a third of the kiosks. The assumptions used to calculate the number of beneficiaries are not reported publicly. The cost per capita for the latest call for proposals (UPC Call #7) is more than double the per capita cost compared to previous rounds. While an increase in unit cost in successful rounds is expected, the magnitude of the increase is concerning.

In summary, a key distinguishing feature of sector performance as it affects access to water by the poor is the extent to which countries have developed and put into practice pro-poor implementation concepts, particularly related to the allocation of funds targeting services to poor underserved people and the development and management of public water outlets.

Implications and action

What appears to be most needed, over and above pro-poor policies, is the translation of pro-poor policies into practice. Two practical mechanisms appear to have been important in the case study countries – the presence of a dedicated pro-poor funding mechanism specifically targeting investments into poor areas and practical implementation concepts for

how these investments can be made in a pro-poor way. These two initiatives are complementary to each other, one providing the earmarked funding to benefit the poor, the other practical mechanisms to translate the funding into pro-poor outcomes.

Provision of access by public water outlets is an important strategy to increase access and support to countries in the development and implementation of very practical pro-poor implementation concepts should be continued, particularly as these relate to targeting funding to the underserved poor areas and to the development and management of public standpipes.

7.3 Commercialisation and professionalisation of service providers

Hypothesis

Commercialisation and professionalisation of public water services have accelerated access in terms of social inclusion and equity in two ways: by generating more domestic resources through increased efficiencies and by leveraging additional funding from other sources like government and donors.

Findings

Service provision has been professionalised in all of the major urban areas in all five countries and extended to a greater or smaller extent to the smaller urban or semi-urban centres, though the timing differs between countries.

At a sector wide level, commercialisation was well established early on in both **Uganda** (for NWSC) and **Burkina Faso** (for ONEA) with an operating cost recovery ratio that has been maintained at a level of well above one from at least 2003 for NWSC (and throughout the period) and from earlier in the case of ONEA (also throughout the period).

This has not been the case for Kenya, Tanzania and Zambia at a country level. In Kenya, the ratio for the large utilities was well above one in the years 2009 to 2011, but for a larger set of utilities declined to 1 in 2012 and again in 2014 and 2015. In Zambia the trend declined over most of the period 2007 to 2015 with the exception of 2012 when the ratio increased. The ratio in 2015 was below one. In Tanzania a ratio of above one was achieved for the first time in 2014 but then declined again to one in 2015. However, it is important to note that there are some good performers in Kenya (for example, Nyeri), Tanzania (for example, Tanga) and Zambia (for example, North-Western Water and Sewerage Company) that can be considered to be fully commercialised with a positive operating cost coverage ratio.

In summary, the two top performing national utilities, ONEA (Burkina Faso) and NWSC (Uganda) were both commercialised early on in the reforms and have performed consistently well for a long period of time. Investment performance and sector outcomes were good in each country. In both cases, the utilities achieved a positive operating cost coverage ratio and contributed significantly to investment from tariff revenues. In addition, both utilities were able to attract significant amounts of donor finance. Commercialisation and professionalisation of public water services has accelerated access to services.

In Kenya, Tanzania and Zambia, although all of the services providers were professionalised, the extent of commercialisation varies within each country. Only a few utilities in each country can be considered to be fully commercialised with a positive operating cost coverage ratio maintained over time. The well-performing utilities such as Nyeri in Kenya have been able to attract finance and increase access. In the case of both Tanzania and Zambia the failure to achieve a significantly positive operating cost coverage ratio at a sector wide level could have been a critical constraint to not achieving higher levels of investment.

Consequently, the hypothesis holds true. It is possible for the sector to achieve both the social goal of greatly increased access and the commercial goal of cost-recovery at the same time. This is not a trade-off. In fact, achievement of the commercial goal of cost-recovery is both necessary and supportive of achieving greater access.

Implications and actions

The attraction of finance, and extending the network to be more socially inclusive, requires a financially viable utility, with an operating cost coverage ratio of substantially above one. It is possible (even probable) that regulators (and/or the politicians with influence over tariff applications and related processes) are paying too much attention to keep tariffs low.³⁰ In other words, a strategy that pays more attention to good corporate governance and gives a premium for it in terms of a higher tariff should be further explored (See governance below).

The findings and the implications related to financing and investment are elaborated in Section 8.3

7.4 Governance (political interference and corruption)

Hypothesis

Low levels of political interference and corruption matter: The more political interference with decisions and operations of autonomous sector institutions with the responsibility for financing, regulation and service delivery is kept at bay and the more corruption is prevented, the better is the performance of the sector in terms of water and sanitation coverage.

Findings

In summary, the case studies strongly suggest that corruption and patronage impose constraints on investment levels and better sector outcomes. Good utility performance and good sector outcomes in Burkina Faso and Uganda, and for some utilities in Kenya, Zambia and Tanzania, appear to have been possible notwithstanding broader governance challenges in each country.

Implications

It is possible to achieve good performance in a sector within a wider more challenging political-economy context. The experiences show that a few people, acting together to create sound governance conditions, can make an important difference to utility and sector outcomes. The findings and the implications related to governance are elaborated in Section 8.2.

7.5 Information systems

Hypothesis

Good sector information systems matter: Fragile and patchy sector information systems, poor quality and insufficient verification of sector data and reports result in poor sector investments allocation choices and in misleading service coverage reporting.

Findings

There has been an improvement in reporting on access in all five country case study countries. Nevertheless, differences in the overall quality of the data monitoring and reporting systems persist. There was a positive association between good investment performance, sector outcomes and the quality of sector data. Better data management will not cause an improvement in sector outcomes. It is more likely that the factors that contribute to good sector outcomes will also result in better data management and reporting. However, better data can support better decision making with respect to investments and control / accountability on the use of financial resources (tariff revenue, investment finance) which can result in improved investment efficiency and ultimately in better sector outcomes.

In summary, without credible data on access it is difficult to measure improvements and allocate investments efficiently and effectively.

30) In Tanzania, for example, the regulator does not receive tariff review applications because the boards of the WSSAs do not permit applications to be submitted to the regulator

Narrative

Without credible data on access to water services, across all of the important dimensions (proximity, accessibility, quality, affordability, quantity and reliability) it is difficult to measure improvements in access to water and sanitation services with any degree of confidence. A credible system should use and reconcile both input data (based on number of active connections together with reliability, quantities provided, quality of water supplied etc) and outcome data (surveys of household experiences in accessing water). While important strides have been made in improving the quality of data collected and reported by Ministries, utilities and regulators in the five country case studies through sector reports, utility annual reports and regulator reports, there is still room for improvement in the following areas:

- 🔧 More transparency in assumptions and methodologies employed to assess access.
- 🔧 Reconciliation of input data and outcome (survey) data.
- 🔧 Third party verification of collected and reported data.
- 🔧 More use of longer timeframes (ten years and more) in reporting to understand sector trends.
- 🔧 Improvements in reporting formats.
- 🔧 Making reports available in a timely manner (within 6 months of the financial year end).

Actions

1. National government, regulators and utilities need to pay more attention to management information systems, data verification and reporting.
2. National government, regulators and utilities need to undertake more regular surveys to improve data on access outcomes (how customers access and experience the services or lack thereof)
3. National government and regulators need to reconcile output data (connections) with outcome data (surveys)
4. Development partners should work with governments, regulators and utilities in support of the above.

8 KEY NARRATIVES AND IMPLICATIONS

Summary findings for sanitation are presented in Section 6.5 and are not repeated here.

8.1 Policy and institutional design

Key findings

Reforms have provided a sound basis for better outcomes – investments leading to improved access. In Burkina Faso and Uganda especially, reforms have been associated with increased levels of investment and better sector outcomes. In the other countries, performance is likely to have been worse in the absence of reforms and in the context of high rates of urbanisation. For example, in Kenya, very low levels of investment in the 1980s and 1990s led to a stagnation of the sector which was not the case after the reforms. The water sectors are no longer dependent on operating subsidies from government.

Without reforms it would not have been possible to reduce the decline in water coverage. High levels of urbanisation would have resulted in significant declines in the urban water sector in the absence of reforms.

Narrative

Policy and legislation provided a sound basis for good outcomes. All five case study countries embarked on a more or less standard set of reforms comprising the following elements:

1. **Policy:** a water services policy that recognises the human right to water and the importance of cost recovery in the urban water sector.
2. **Legislation:** separation of water resources management from water services, and codification of the water policy and institutional design in law.
3. **Professionalisation and commercialisation of the water provider function:** creating of companies (under public or company law) with governing boards, to assume responsibility for the provision of water supply (and typically sewer) services, and requiring these utilities to recover their costs from the tariff. In some cases, the investment and operations functions were combined and in others these were separated.

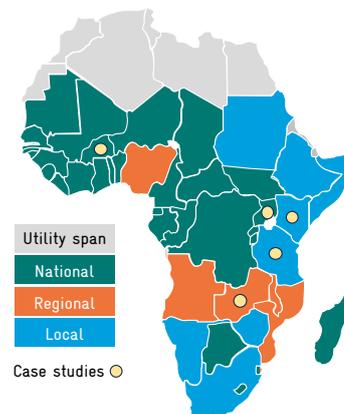
Interestingly, the sequence did not seem to matter too much – in some cases the legislation preceded the policy. What is perhaps more significant is that reforms took many years to be substantially implemented.

In summary, it can be argued that the reforms undertaken in each of the countries provided an adequate basis for the achievement of good sector outcomes. However, performance across the countries was mixed. Clearly the creation of this enabling framework was not, on its own, sufficient to ensure good sector outcomes.

There is no single preferred institutional structure. The sector structures in the different countries are different and unique to their context. *Success is possible for national-level, regional-level or local-level utilities, with or without a regulator, and with or without a national professional financing/investment agency.*

National, regional and local delivery each have their advantages and disadvantages. Where there is a single national utility, the reform of that utility will achieve significant benefits for the country. At the same time the stakes are high – poor performance by the one single national utility will affect the urban population of the whole country. In this context, the regulator may be subject to regulatory capture due to the relative power of the national utility. Regional entities retain the benefit of economics of scale that a national utility enjoys. Sector-wide good performance requires that all or most of the regional entities perform well. This calls for bringing attention to sound governance for each utility. More boards are required to function well and more competent CEOs and management teams are

required. A regulator is likely to add value in the sector by increasing transparency and enforcing standards. In the context of decentralisation, the smaller utilities may not benefit from economies of scale and many more competent boards and managers are required. Regulating a large number of utilities is challenging. Clustering of utilities to form fewer, large utilities may be beneficial. It is also easier to regulate a few utilities compared to many. The appropriateness of a national or regional provider is also contextual to the size of the country. In many relatively small African countries, a single national provider makes the most sense. Whereas, in very large countries such as Nigeria, regional or localised provision may be more appropriate. The incidence of national, regional and local provision (as the dominant form of provision) is shown in the map on the right.



Source: Author

Scope for large-scale structural reforms may be limited. The water reforms in the late 1990s and early 2000s took place in the context of wider structural adjustments in each country. This provided the opportunity for fundamental reforms of the sector, including the redesign of the institutional arrangements in some cases. *In the absence of any large scale crises or external shifts* (for example, the new constitution in Kenya in response to election-related violence) *there is unlikely to be scope for large scale institutional reforms in the urban water sector in any of the case study countries*. Incremental reforms are more likely, including, for example, recombining the asset holding and operating functions in some cases (see below) and clustering of service providers.

Separation of asset holding from operations is not necessary to achieve good performance and may be an obstacle.

The operating of the assets was explicitly separated from the asset holding and investment function in Kenya and for the entities supplying water in Dar es Salaam in Tanzania. The motivation was to facilitate private sector involvement in the operations of the assets while maintaining public ownership and control over the investment function. However, in both Kenya and Tanzania, the hopes for private sector involvement in the operation of the assets did not transpire to any significant extent. There was a failed initiative to lease assets to a private operator in Dar es Salaam and the amalgamation of the asset holder and operating company (both publicly owned) is being considered. The future of the asset holding and investment companies in Kenya, the Water Services Boards, is highly uncertain. The assets have been transferred to the newly established county governments who have responsibility for water and sanitation services.

Assets were not separated from operations in Burkina Faso, (most of) Tanzania, Uganda and Zambia. Both Burkina Faso and Uganda performed well with respect to both the overall level of investment as well as the qualitative assessment of the investment and financing function.

In summary, the separation of asset holding from operations is therefore not necessary for good performance and is unlikely to be desirable in the absence of private sector involvement in the operations of water services. It is better for a single professional entity to be responsible for both investment and operations as this is more supportive and enabling of an appropriate alignment between investment and operations.

A separate, professional regulator has important benefits but may not be essential in all cases. The creation of an independent regulator for a natural monopoly is the textbook solution that in many cases turns out to produce desired improvements in the sector. Of the five countries studied, three had established independent professionalised water regulators and two had not. It is unlikely to be a coincidence that the two countries without a national regulator both have a single national utility with responsibility for water provision to a major share of the urban population. In this situation, it is difficult for a national regulator to balance or oppose the power of the single national utility and it is

impossible to benchmark the performance across utilities. In the case of Uganda, the national utility, NWSC, actively opposed the establishment of a regulator, asserting that this was not necessary and would not add any value, only an additional cost to the customer. In the case of Burkina Faso, a supervisory mechanism was introduced through a multi-stakeholder oversight committee. The performance of both NWSC (Uganda) and ONEA (Burkina Faso) was managed through performance contracts between the national shareholder ministry and the utility.

The proposition that greater transparency in reporting utility performance would create sufficient incentives to significantly improve performance on its own has not proven to be robust. Regulators were established in Kenya, Tanzania and Zambia. The regulators have reported on the performance of the regulated utilities in these countries ranging from ten in Zambia to over 100 in Kenya and Tanzania respectively. Performance of these utilities has been mixed and poor performance has continued in the case of many of the regulated entities. However, benchmarking and overall improved transparency has affected performance to some extent, for example, in Zambia (Lang, *pers comm*, 2018). The licensing arrangement is a blunt instrument because the threat to withdraw an operating licence is generally not credible – to the author’s knowledge, no operating license has been withdrawn from a provider in any of the three countries. **One other option to increase incentives to perform is to establish performance contracts between the owner (shareholder) and the utility.** Where operations are decentralised, this would result in a large number of performance contracts and thought needs to be given as to how these contracts are supervised and enforced. This could be because the regulatory system is not accompanied with a robust management of performance contracts between the shareholder ministry and the utilities.

In summary, an independent regulator has an important role to play, particularly where operations are decentralised (to the regional or local level). The benefits of regulation are increased transparency and benchmarking of performance, as well as an important role in setting or approving tariffs. However, the most fundamental difference between a well and poor performing utility is due to governance. Getting the governance right is the responsibility of the utility shareholder, although a regulator can assist in monitoring and enforcing adherence to governance rules.

Actions

1. **Incremental reform.** BMZ can work with countries to improve performance within the existing institutional frameworks, seeking incremental improvement to institutional structures rather than radical reforms or sector overhauls.
2. **Clustering.** BMZ should continue to promote the clustering of small providers into fewer large providers.
3. **Amalgamation of asset holding and operations.** BMZ should support the amalgamation of the asset holding and operations functions in a single entity, where appropriate, as this improves investment-operation alignment and synergies, and reduces complexity and opportunities for inter-agency gaming.
4. **Regulation.** The creation of an independent regulator for a natural monopoly is the textbook solution that in many cases turns out to produce desired improvements in the sector. Evidence from this study, however, has shown that in a context where there is a single national utility (as in Burkina Faso and Uganda), the creation of an independent regulator might not be necessary. Hence GIZ should carefully assess whether important preconditions in terms of sector structure are fulfilled before arguing for the creation of an independent regulator, particularly in a context where there is a single national utility (for example, Uganda).
5. **Governance.** More attention needs to be paid to the importance of governance and how accountability arrangements and regulators can promote better governance – see Section 8.2 below which also argues that governance substance is more important than form.

8.2 Governance and incentives

This is an elaboration of the findings summarised in Section 7.4 (Governance).

Summary narrative

It is possible to achieve good performance in a sector within a wider more challenging political-economy context. Achievement of good sector performance through sound governance in the water sector could have wider benefits for the country as a whole through demonstration and contagion effects. An important basis for sound governance is accountability. This requires audited (externally verified) reporting on access and financial and technical performance. Regulators can support improved governance (through increased transparency and other measures), but are unlikely on their own to play a decisive role in this critical area. It is government (as shareholder / asset owner) that must put sound governance arrangements in place to manage their assets. Performance contracts can play an important role in improving performance. Stakeholder oversight supports good governance.

Narrative

Relatively poor performance is the norm for urban water utilities in Africa. Many large public utilities in developing countries (operating at a national, regional or city scale) fall into a low-level equilibrium trap. Tariffs are kept low for political reasons and the utility is starved of resources. At the same time, the utility is a source of patronage through management and staff appointments and extractive procurement practices. Consequently, services are unreliable and there is little expansion of the network. Poor people are most disadvantaged in these circumstances. The five case study countries score relatively low on government effectiveness and control over corruption (Figure 4). Poor outcomes with respect to public services such as water that are typically subject to patronage are therefore not unexpected.

The water sector can be a catalyst for wider political-economy reforms. The political-economy within a sector, or for a specific utility, does not have to replicate the national political economy, in fact, it can act in the opposite direction in a positive way. Khan (2017) proposes the possibility of “strategies that identify sectoral opportunities for anti-corruption where policy changes are likely to be supported by some powerful players in the sector and achieve immediate development goals.” His approach can be summarised as follows: “To make sequential progress towards a rule-following society, anti-corruption reform in particular sectors has to be designed to be implementable and to have a development impact. When the vertical enforcement capacities of a state are limited and horizontal enforcement is also weak it is vitally important to identify activities where anti-corruption is feasible because some powerful interests can feasibly benefit from anti-corruption. This is possible if changes in policies and institutions can make it profitable for at least some powerful players to behave in developmental and socially desirable ways in these activities. If we can identify these opportunities and make the changes that create effective support for anti-corruption of specific types, anti-corruption strategies can be both feasible and developmental. This in turn can help to accelerate the creation of a dynamic and diversified economy with many productive sectors. As more and more productive organisations emerge, the social capability for a horizontal enforcement of a generalized rule of law becomes stronger and informality declines” (Kahn, 2017).

The good water sector performance in terms of both investment and access in Burkina Faso and Uganda suggest that Kahn’s ‘sector first’ approach to wider reforms is possible. In Uganda in the late 1990s the pressure to privatise the national water utility created an opportunity for the reform of the institution. A business-trained managing director, William Muhairwe, seized this opportunity and was able to forge a compact with his political principals, the Minister and the President, that gave him the space to improve performance in a context where commercialisation of entities was supported by government for pragmatic reasons (the government was short of cash). Key initiatives in the reform of the NWSU included insulating the organisation from patronage in both recruitment and procurement practices, and building a competent management and technical team to lead the utility. In Burkina Faso a compact with donors was forged in the 1990s and rendered secure and sustainable with external stakeholder oversight of tariffs and sector performance from 2008 (Box 8).

Box 7: Sector reforms in Burkina Faso

In the 1990s, Ouagadougou faced a severe water shortage. The city population had doubled from 1985 to 2000, but the development of water service infrastructure had not kept pace with increasing demand. By 2000, just half the population had access to piped water (through individual taps or communal stand-pipes). ONEA, the utility responsible for providing water to Ouagadougou, was performing poorly and thus lacked the cash needed for service improvement. Salif Diallo (Burkina Faso's Minister of Environment and Water from 1995 to 1999) and Mamadou Lamine Kouate (Managing Director of ONEA from 1995 to 2005) were the political and technical leaders, respectively, that were critical to starting the water sector reform.

It can be inferred that Burkina Faso's then-president, the strongman Blaise Compaoré, gave his political

blessing. Diallo and Kouate resisted suggestions from the World Bank to introduce a private operator to manage the service. Instead, ONEA remained a government-owned, limited liability company. From 2001 to 2006, technical assistance from a private operator (Veolia) was provided through a performance-based service contract. In addition, a Supervision Committee – comprising representatives of consumers, government, NGOs, and development partners – was established. The Supervision Committee monitors both ONEA and the government's performance against the Contract Plan (three-year performance contract), but it also is an example of a formal structure that developed an important informal role in connecting the key actors in a common forum, from where they have been able to guide and support reform and progress in alliance mode.

Source: Heymans et al (2016)

The challenges of a prevailing difficult governance context are illustrated by Kenya where there appears to be **strong evidence that political influences significantly affect sector outcomes**. See Section 2.3.

Regulators can support improved governance through increasing transparency and standards for boards. The recently established governance indicators monitored and published by the regulator in Kenya, for example, support the view that there is ample room for governance improvement. See Section 2.3.

The proposition for Kenya is that **poor governance is a root cause of low investment, because this allows institutional inefficiencies to persist and it significantly limits the contribution that can be made towards sector investments from sector revenues**. Any 'surplus' resources are 'eaten' at the local level. Poor governance also results in low investment effectiveness due to inefficient and wasteful use of scarce financing, estimated to be between 20% and 40% of investment financing in the case of Kenya.

While regulators can play an important role in supporting improved governance through increasing transparency and putting in place other incentives, they are unlikely to play a decisive role. **It is the asset owner that must play the decisive role to establish sound governance for how the asset it managed.** This is typically at a political level, at the national, regional or local level because water assets are publically owned.

An important basis for sound governance is accountability. This requires audited (externally verified) reporting on access and financial and technical performance. While important progress has been made in reporting on access and technical performance in all five case study countries, there is still significant room for improvement. See Section 7.5.

Performance contracts can improve performance. Performance contracts have played a significant role in the turnaround performance of both ONEA in Burkina Faso and NWSC in Uganda, two of the top performing utilities in Africa (Heymans et al, 2016, Marin et al 2010 and Muhairwe 2008). A management contract for the operation of some mining towns in Zambia was in place from 2001 to 2005 and Nkana (the publicly owned company that took

over operations) has consistently been a good performer in the regulator NWASCO's annual sector performance reports since then. However, a lease contract for the operation of water services in Dar es Salaam was not a success for a set of complex reasons (World Bank 2012). Performance contracts can therefore play an important role in improving performance, but this is not guaranteed. Attention needs to be paid to the design of incentives and consequences. The soft incentives associated with a regulatory performance reporting system with league tables appear to have little effect on performance – an analysis of the performance ranking of Zambia utilities shows little movement between rankings over time with four of five utilities consistently rotating among the top three places (Lang, personal communication, 2017). Incentives do not appear to have an effect on the poor performance at the bottom of the ranking, that is, those in most need of performance improvements. While well-designed performance contracting could improve performance there is also the challenge of managing a large number of these contracts where provision has been highly decentralised such as in Tanzania and Kenya.

Stakeholder oversight supports good governance. Three-year performance contracts between government and ONEA (the national urban water utility) were established in 1993 in Burkina Faso and oversight of these contracts was strengthened through a multi-stakeholder committee in 2008. The multi-stakeholder committee comprises representatives of customers, nongovernmental organisations and the development partners who finance the sector. The committee monitors performance of both the utility and the government under the contract, on the basis of independently audited financial and technical reports. This design helps to establish accountability to external stakeholders within formal structures. Heymans et al (2016) argue that this set up provides some protection against risks of patronage and corruption and that this mechanism has supported good performance. While NWSC also has a performance contract, this is not overseen by external stakeholders and consequently there is less transparency with respect to performance report and an absence of third party validation. Introducing such a mechanism could strengthen governance and accountability.

Actions

1. More attention needs to be paid to **good governance as the key distinguishing factor between good and poor performance.**
2. Much more focus should be given to **measures to improve governance substance. Governance substance is much more important than form.**³¹ Structural indicators of good governance (“good form”) such as the existence of a board of directors and how many times they meet, are poor indicators of governance substance. Better indicators need to be found.
3. **Regulators should incentivise and reward good corporate governance and support the financial sustainability of utilities.** Regulators can do this by awarding tariffs that are sufficient to increase the share of investment financed from tariff over time where there is good corporate governance. Regulators can require the creation of a separate fund for investments to which a portion of the tariff must contribute. This reduces the risk of tariff increases being ‘eaten’ by increased and inefficient operating expenses.
4. Mechanisms to increase **stakeholder oversight** of sector performance and sector institutions should be explored where these are not in place or are inadequate.
5. **Investments should be preferentially allocated to institutions where sound governance has been established** as this will lead to much more effective use of scarce finance (See Section 8.3).

31) Governance form or structure refers to the formal legal and institutional structures that are in place. For example, water providers are constituted as companies in terms of private law and are established with a board of directors; companies must publish audited financial statements, boards are appointed for limited terms etc. Governance substance refers to how effectively the board of directors (and other structures) operates to ensure good governance. For example, do they interfere in tender processes? Is the auditor truly independent?

8.3 Sector financing

This is an elaboration of the findings summarised in Section 7.1 (Financing strategies and mechanisms)

Key statements and narratives

There is a large and growing financing gap and investments will have to be increased by a multiple of current amounts to meet the Sustainable Development Goals for water and sanitation in Sub-Saharan Africa. The pace of urbanisation in Africa is rapid and there is still a backlog in the provision of piped water to people living in cities. The current level of investment is insufficient and will have to be substantially increased to meet the Sustainable Development Goals for water and sanitation.

It is possible for the sector to achieve both the social goal of greatly increased access and the commercial goal of cost-recovery at the same time. This is not a trade-off. In fact, achievement of the commercial goal of cost-recovery is both necessary and supportive of achieving greater access. The experience with sector reforms in Africa over the last twenty years has shown that it is possible for well-managed urban water utilities to be created and sustained in challenging circumstances in low-income countries, for these to extend the piped water network to the large majority of people living in the cities they serve, even in the context of rapid growth, and for the investments to be financeable. The findings in this study support this. This was also found in a World Bank study (Heymans et al 2016).

The sector reforms have had a positive impact on sector financing. In Burkina Faso and Uganda especially, reforms have been associated with increased levels of investment and better sector outcomes. In the other countries, performance is likely to have been worse in the absence of reforms and in the context of high rates of urbanisation. For example, in Kenya, very low levels of investment in the 1980s and 1990s led to a stagnation of the sector which was not the case after the reforms. The water sectors are no longer dependent on operating subsidies from government. See Section 8.1.

The urban water sector in developing countries can be substantially financed on the basis of operating revenues from the tariff. The evidence from the case studies shows that the utilities in the two of the poorest countries, Burkina Faso and Uganda, were able to run a substantially positive operating cost coverage ratio meaning that the utility was able to contribute to some extent to investments from the cash obtained from operations after meeting operating costs. This view is also supported by evidence from Senegal, as reported in Heymans et al (2016). This evidence strongly suggests that it is possible for urban water utilities in African countries to be substantially financed on the basis of operating revenues from the tariff. What is also significant is that outcomes in terms of reported access to water services were better in Burkina Faso and Uganda (and also Senegal) compared to the other countries. However, what is also required is a transition away from reliance on development partners for financing. Both Uganda and Burkina Faso were heavily dependent on development partner financing. In the case of Uganda, loans to the government were passed on as grants to the utility. In Burkina Faso, the utility ONEA was required to pay back the loans.

The urban water sector can mobilise loan financing, even in poor countries. NWSC and ONEA (and some utilities in the other countries) show that loan-financing is possible and can and should be pursued. This is important in order to mobilise resources from the capital markets in the long-run, to enhance the discipline of the utilities and also to make the best use of scarce grant financing.

Cash surpluses should be used to support increased investment. A higher tariff does not automatically translate into cash availability for investment or loan financing. In fact, the evidence from Kenya suggests that tariff increases result in an increase in operating costs rather than an increase in cash availability for investment. Mechanisms are therefore needed to ensure that a portion of the tariff is set aside for investment, rather than being swallowed up into increased operating costs through, for example, increased staff and salaries. This is one advantage of separating asset holding from operations, as this 'forces' a fee to be paid between the operating and the asset holder. However, there are disadvantages to this arrangement as already discussed in section 8.1. An alternative is to tie tariff increases to a cash

contribution towards investment. For example, in Kenya, the regulator has the power to require (and enforce) that water service providers open and manage a separate account to be used solely for the purposes of funding/financing assets or repaying loans, and require that a defined portion of the tariff revenue, as determined by the regulator in the approval of the tariff, be paid into this account. This would reduce the risk of tariff increases being ‘eaten’ by operational costs instead of being set aside for asset replacement and financing asset expansion. This is already a proven procedure over many years in Burkina Faso, where oversight by the Ministry of Finance guarantees that the system works.

Tariff indexing can protect sector revenues. Tariff increases are often politically contentious. For example, the Managing Director of Tanesco, the electricity utility in Tanzania, was fired by the President over a tariff increase even though the tariff increase had followed due processes as set out and managed by the electricity regulator in Tanzania. NWSC in Uganda was able to negotiate and agree with its parent Minister an indexation of the tariff. This meant that the tariff would increase automatically in line with inflation and other agreed core cost drivers. Consequently, NWSC did not have to apply for a tariff increase or adjustment for many years, yet it was able to sustain positive operating cash flows over a long period of time through this mechanism (Figure 9). In contrast to this, the Nairobi utility in Kenya struggled to maintain its tariff level. Even though the regulator supported tariff increases, political considerations often trumped technical-financial considerations. In many cases, utilities in Kenya and Tanzania did not apply for a tariff increase even through the regulator encouraged and requested them to do so, suggesting that political considerations at the board and management level of utilities were at play.

It is important to make better use of scarce grants and subsidies to expand services to the poor. Most sector investments, which are subsidised, go into backbone (‘first mile’) infrastructure and only a small share – typically about 7-10% – goes towards ‘last mile’ connections and kiosks for poor people. At the same time, the minority of households (in most settlements) who do have access to a house connection (piped water on premises) are not paying for the full cost of the service. This is problematic in a context where a growing number of households does not have access to any piped water service. The implicit subsidy in this system (investment cost and subsidised operating cost) is regressive, benefiting existing users with connections (including industry, commerce and a minority of the population) and reducing the resources available for investments to extend the service to the unserved. The poor households who do not have access typically pay vendors many times of the cost of water from the utility. There is an opportunity here to rethink the subsidy model in a way that makes it both more progressive (benefitting those without a service first) and sustainable. *Investments into backbone infrastructure should be financed from loans and go hand in hand with tariff increases for consumers with access to a connection. The scarce subsidies should be used to extend the network to poor households.* This is the most progressive use of the scarce subsidy.

Expanding the reach of good governance is a sensible strategy. It is hard to establish good governance. Where it exists, it makes sense to extend the reach as far as is practical and appropriate. This can be achieved through the incorporation of new areas under the management of an existing well-managed and soundly governed utility. This has been the approach used in Burkina Faso and Uganda. In these cases, the national utility was transformed and then its reach was expanded. However, this approach also has dangers. The utility could become too large and management arrangements unwieldy. NWSC rapidly took over many towns and now serves over 200 towns. The full impacts of this on utility performance are still to be assessed.

Competitive allocation of financing will improve investment effectiveness. There is a significant opportunity to improve investment effectiveness by linking operational improvements with investment. This is important for the reasons given in Box 3. Water providers who have demonstrated a commitment to good governance and operational improvements (using their existing assets) will participate in the design and implementation of new investments much more effectively, resulting in more cost-effective and sustainable investments. *This means that major investments should take place after some governance and operational improvements have been achieved and that available capital should be competitively allocated to water providers that have demonstrated both governance and operational improvements.* A possible concept is described in Box 8. It is argued by some that this approach is counter to a ‘leave no one behind’

approach. This is not the case. When investments are inefficient, then this will necessarily result in leaving people behind in a context where available investments are not sufficient to meet the total need. An approach that substantially increases the efficiency and effectiveness of investment will *extend* the reach of the money invested, *reaching more unserved people* and hence leaving fewer people behind.

Box 8: Linking financing to operational improvements – a concept

1. A key to success is to identify promising starting conditions for significant improvements in water providers. The key here is sound governance. This is likely to include the commitment and (potential) capability of the water provider manager and the prospects of having supportive board members and politicians (good governance). These starting conditions can be tested in a low cost way.
2. Selected water providers are supported in a practical way with technical operations and management, after an initial scoping. Small funds could be made available for essential equipment and small works to significantly improve operations and revenues, and further support the strengthening of governance. This could be through a grant and/or interest free loan (from a revolving loan fund). The experience shows that inefficient utilities can easily increase cash flows through management interventions at low cost.
3. While operational improvements, support to management and governance strengthening are underway, the required larger investments can be scoped.
4. The utility would then apply for investment funds. The water provider would, by now, be in a much stronger position to benefit from the investments and to maintain and operate the assets sustainably over time.
5. Investment funds could come from a number of sources. Ideally, the initial grants and/or loans for operational improvements would be part of an integrated financing mechanism.
6. Successful water providers will forge a pathway to good performance that other water providers can follow and the process will lead to the more effective use of scarce capital across the sector over time.
7. The top performers should, over time, be able to source loan funding in the capital market (including international institutional investors).

Source: Author

Actions

1. **Ongoing attention should be paid to improving the overall efficacy of the financing ecosystem.** The professionalism, governance (freedom from undue political influence), accountability and transparency of the financing ecosystem should be continuously improved. Where the financing function has not been professionalised, this is an important reform step to take. The allocation of financing should not be politicised but based on transparent criteria reflecting pro-poor and sustainability policies. See Section 7.1.
2. **Sound governance is the key differentiating factor between good and poor performance.** Poor performance hurts the poor the most. Finance should follow good governance. Much greater attention needs to be paid to the minimum requirement of sound governance as a precondition for the effective use of scarce financing.

3. **Expanding the reach of good governance.** The sector should take advantage of islands of good governance to extend the reach of effective and efficient services, by expanding the sphere of influence of good governance to the extent practical and appropriate.
4. **The competitive allocation of finances on the basis of sound governance will increase the overall effectiveness of scarce finance.** The practical possibility of using sound governance as a pre-condition for investment should be further explored. It is difficult but not costly to establish good governance. Good governance should be demonstrated prior to any significant investment flows.
5. **Operating cash surplus.** All urban water providers should achieve, at a minimum, a cash-based operating cost coverage ratio (OCCR) of 1.2 and aim, over time, for an OCCR of 1.5 or more.
6. **Mechanisms to protect this cash surplus** for use as a contribution towards investment need to be explored and implemented. There is a risk that cash surpluses are eroded through inefficient increases in operating expenses.
7. **Each utility should be on a financing path that transitions away from dependence on development partner financing.**
8. **At a country level, the level of investment in water and sanitation needs to substantially increase as a percentage of GDP and per person living in urban areas.** Indicative targets are more than 1% of GDP and at least \$10 per person per year. Getting water to people requires investment in pipes (and the associated infrastructure). If the level of investment is insufficient, correct policies and other initiatives will not get more pipes laid and the water flowing to where it is needed and will be used by poor people.
9. **Tariff level.** Generating cash from tariff revenue to support investments into the water sector is critically important. In most cases, tariffs should be at least a \$1 per kl and probably more. The argument that a tariff level of \$1 per kl (or more) is not affordable is not supported. Poorer people are worse off where services are inadequate and unreliable, paying many more times this price for vended water, often of dubious origin and quality (Heymans et al, 2016).
10. **Tariff indexing** should be used more widely to protect utility revenues.
11. **Pro-poor subsidies.** Scarce capital subsidies should be used preferentially to extend the network to poor households without access to piped water. Backbone infrastructure and infrastructure serving non-poor households and nondomestic uses should not be subsidised, but be financed through loans and repaid through the tariff. Tariff designs should allow for cross-subsidisation from high-income and commercial costumers to low-income costumers for a minimum quantity of drinking water.

8.4 Implications for development partners

The implications of these findings for development partners in general, and German Development Cooperation specifically, are set out in the second part of this review.

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ANNEX 1: INSTITUTIONAL STRUCTURE

Burkina Faso

Function	Responsible institutions	Comment
Policy	MWS	Policy, targets, supervision of sector progress against targets
Regulation	GoBF	Tariff are approved by the government upon recommendation of ONEA, relation between GoBF and ONEA is governed by the contrat-plan, incl. performance targets
Financing	GoBF ONEA	Funds from national government & development partners; Self financing (own resources and loans for ONEA)
Investment Planning	ONEA owned by GoBF	ONEAs functions include the planning & execution of new projects for water supply and sanitation. Its plans are the basis for funding decisions and securing funds from development partners.
Investment implementation		
Operations and maintenance		

Kenya

Function	Responsible institutions	Comment
Policy	MoWI	The national ministry sets policy and sector targets, and reports on sector progress.
Regulation	WASREB	The regulator, WASREB, issues licenses for WSPs, approves tariffs, sets standards, monitors and reports.
Financing	MoWI WSTF WSBs Counties	Funds from national government & development partners are allocated to WSBs and the WSTF as grants and loans. Counties have a right to finance investments.
Investment Planning	Water services boards (WSBs) Counties	Counties develop water services development plans. Water Services Boards plan & implement new projects for water supply and sanitation. This function is to be passed on to the WWDA/s (still to be created), possibly with a reduced mandate. Counties have right to implement investment but do little in practice at present.
Investment implementation		
Operations and maintenance	Counties	WSPs providing services in urban areas are commercially – oriented, operating companies who can also finance and implement their own investments but do little in practice.

Tanzania

Function	Responsible institutions		Comment	
Policy	MoWI		Policy, targets, reporting on sector progress against targets, investment allocation (see financing)	
Regulation		EWURA	Licensing of WSSAs, tariff approvals, setting standards, monitoring, reporting	
Financing	MoWI	NWIF	Funds from national government & development partners through WSDFs and NWSC	
Investment Planning	MoWI	Investment planning & implementation support	WSSA functions include the planning & execution of new projects for water supply and sanitation. Business plans are the basis for funding applications to MoWI and securing funds from development partners.	
Investment implementation		WSSAs Regional (23) National Project (8)		
Operations and maintenance	MoWI	O&M funding support	DAWASCO	In the case of Dar Es Salaam (with a third of the urban population), a separate operating company (DAWASCO) was created. See text.

Uganda

Function	Responsible institutions		Comment
Policy	MWE		Policy, targets, reporting on sector progress against targets, investment allocation (see financing)
Regulation	MWE		Ministry regulates through performance contracts with Water Supply Authorities determined by the Minister
Financing	MWE		Funds from national government & development partners through WSDFs and NWSC
Investment Planning		WSDFs (small towns)	Water and Sanitation Development Facilities (WSDFs) plan and the implement investments in small towns with DP support.
Investment implementation			NWSC takes over systems developed by WSDFs (small towns) and also does own planning and investments (existing towns).
Operations and maintenance	RWUs/umbrellas	Private operators	Responsibility given to Water Supply and/or Sewerage Authorities (WSSAs) by Minister. Operations and maintenance of small towns is moving away from POs (contracted to Local Government) to either RWUs or NWSC.

Zambia

Function	Responsible institutions	Comment
Policy	MWSDEP	Policy, targets, reporting on sector progress against targets, investment allocation (see financing)
Regulation	WARMA NWASCO	WARMA: Water Resources Management NWASCO: Licensing of CUs, tariff approvals, setting standards, monitoring, reporting
Financing	MWSDEP DTF	Funds from national government & development partners
Investment Planning	MWSDEP	WSSA functions include the planning & execution of new projects for water supply and sanitation. Business plans are the basis for funding applications to MoWI and securing funds from development partners.
Investment implementation	Investment planning & implementation support	
Operations and maintenance	NWSDEP O&M funding support	
		<div style="border: 1px solid black; padding: 5px; display: inline-block;"> CUs Regional (11) Owned by Municip./ MLGH </div>
		11 CUs are responsible for providing WSS Services. See text.

ANNEX 2: ASSESSMENT CRITERIA

Table 2.1:
Sector financing

1.1 Level of investments in WSS: Average investments in urban WSS per year (in millions of USD) over the period 2005 to 2015 divided by the total urban population in 2015.	High >10 USD per urban dweller / year	Moderate 5 – 10 USD per urban dweller / year	Low < 5 USD per urban dweller / year
1.2 Effectiveness of investments: Urban WSS investments / year (in millions of USD) divided by the number of previously underserved dwellers that have been provided with access to services / year [or investment in X years divided by additional access for people in X years]	High The lower this ratio, the higher the effectiveness in terms of additional coverage	Moderate	Low The higher this ratio, the lower the effectiveness in terms of additional coverage
1.3 Linkage between financing commitments and sector progress/ coverage increase	Strong Sector investment commitments depend on third party audited / verified progress; a review mechanism does exist	Moderate Sector investment commitments / allocation depend on reported progress (no third party verification)	Weak Sector investment commitments / allocation do not depend on progress
1.4 Long-term sector financing model / plan	Exists and is applied	Exists (partly) but is not applied	Does not exist
1.5 Incentives for external financing agencies to invest in low-income areas (last mile infrastructure)	Strong	Moderate	Weak
1.6 Level of self-financing of sector investment (through water bills) vis a vis external funding (ODA) and government transfers / subsidies	High >5% of capital investments financed through sector revenue	Moderate O&M Cost covered through sector revenue	No Self-financing O&M cost not recovered / government subsidizes O&M cost and investment
1.7a Professionalism of financing mechanism	High Dedicated financing agency	Moderate Dedicated Project unit; staffed from administration	Low Investment within the administration
1.7b Autonomy of financing mechanism	High Multiple/effective barriers against political interference	Moderate Insufficient barriers against political interference	Low Politically directed investment allocations.
1.8 Accountability of sector financing mechanisms / structures	High Public reporting / third party verification of outcomes of sector investments	Moderate Limited public reporting / no third party verification of outcomes of investments	Low No public reporting / no third party verification of outcomes of investments
1.9 Effectiveness of commercialisation of water service providers (Moved from governance)	High Clear, stable and broad trend towards improved commercial performance / cost recovery	Moderate Limited but growing number of providers improve commercial performance / cost recovery	Low Overall commercial performance / cost recovery is low
1.10 Transparency of investment data (new criteria)	High Detailed Public reporting (with audits) of investment data	Moderate Public reporting of investment data only at high level (lacks detail)	Low Partial reporting of investment data (incomplete view of sector investments)

2.1 Pro-poor focus of sector policy / strategy / legislation	High Explicitly recognize the human rights to WSS, put a priority on underserved areas, define clear targets / indicators to expand coverage	Moderate Recognize human rights to WSS and make references to underserved areas / population groups.	Low Do not refer to human rights to WSS and only attribute low priority / little specification on underserved areas / population groups
2.2 Pro-poor regulatory system / regulation	High All key regulation instruments (Service standards, tariffs, monitoring etc.) explicitly recognize needs of low-income groups / areas	Moderate Some regulation instruments consider needs / characteristics of low-income groups / areas	Low Regulation instruments largely do not consider needs / characteristics of low-income groups / areas
2.3 Pro-poor orientation of sector investments (funding of last-mile infrastructure/ low-cost technologies for WSS)	High A significant share of sector investments is explicitly (with earmarked funding) allocated to low-income areas	Moderate It is an expressed goal to allocate a share of sector investment to low-income areas (but without earmarked funding)	Low Investments in low-income areas are not an explicit goal and there are no earmarked funds for this (only considered as a side measure of larger investment projects)
2.4 Pro-poor orientation of service delivery (formal service providers, utilities)	High Responsibilities to serve low-income areas, mandates of service providers to serve low-income areas are clearly defined	Moderate Service providers deliver services in low-income areas, but responsibility / mandate is not official defined	Low Service providers largely do not deliver services in low-income areas and are not obliged to do so
2.5 Affordability of water services / Sanitation services delivery (low tariffs at public outlets combined with rising block tariffs in order to allow for cross-subsidies)	High Water tariffs at public outlets are regulated / a progressive / rising block tariff is in place	Moderate Water tariffs are only partially regulated; no progressive / rising block tariff in place	Low Water tariffs are not regulated at public outlets, no progressive tariff structure in place
2.6 Accessibility / Non-discrimination of access to WSS	Strong Public water outlets are (mostly) on public ground	-	Limited Public water outlets are (frequently, exclusively) on private ground
2.7 Standards / implementation concepts for WSS in low-income areas	Applied at scale Implementation concepts and standards for WSS in low-income areas exist and are applied	Applied on pilot level Implementation concepts for WSS in low-income areas exist but are not consistently applied	Not applied Implementation concepts for WSS in low-income areas do not exist and / or are not applied

Table 2.2:
Pro-poor orientation

Table 2.3:
Sector
governance

3.1 Separation of core sector functions (policy – regulation – financing – service delivery)	Strong Functions completely separated	Moderate Functions partially separated	Weak Functions not separated
3.2a Real autonomy of institutions responsible for financing.	Strong Absence of undue political interference into operations / autonomous decision-making of these institutions has become an undisputed concept	Moderate Occasional political interference into operations / decision-making of these institutions – autonomy not yet an undisputed concept	Weak Frequent / regular cases of political interference into operations / decision-making of these institutions – autonomy not yet accepted
3.2b Real autonomy of institutions responsible for regulation.	As above	As above	As above
3.2c Real autonomy of institutions responsible for service delivery.	As above	As above	As above
3.3 Separation of tariff setting / adjustments from politics	Strong	Moderate	Weak

Note renumbering. Old 3.4 now 3.3 and 3.3 moved to 1.9

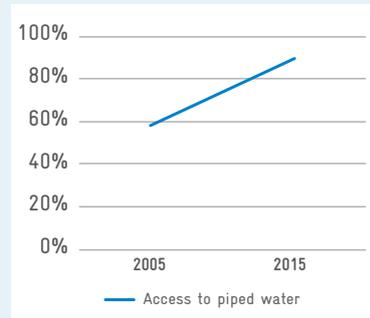
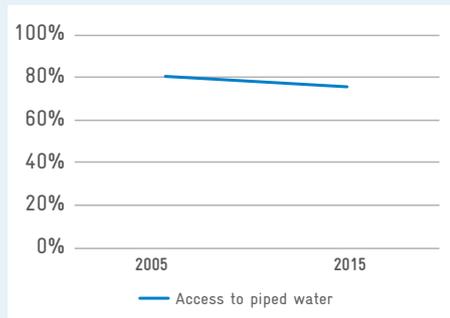
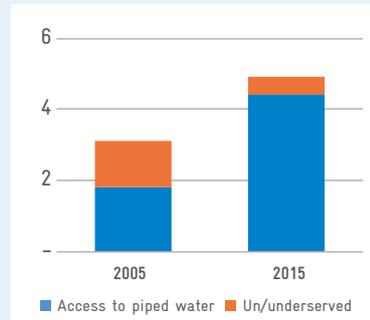
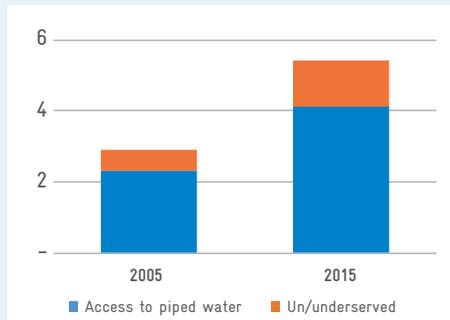
Table 2.4:
Sector
information
and reporting

4.1 Reliability of sector data	High Third-party / external / independent verification of sector data	Moderate	Low No independent verification of reported data
4.2 Consistency of data / information and assumptions / definitions from different sources	High Different sources report similar coverage with formal WSS services	Moderate Different sources report different coverage with formal WSS services, but inconsistencies can be explained	Low Different sources report contradicting coverage with formal WSS services, inconsistencies cannot be explained
4.3 Autonomy of sector data management	High Data collection / processing are performed by institutions responsible for financing, regulation, service delivery	Moderate	Low Sector data collection / processing performed by sector ministry / political body.
4.4 Transparency of data collection / processing (to the public)	High Assumptions, definitions, areas, raw data and tools etc. for data collection / processing to calculate coverage are accessible (for the public)	Moderate	Low Assumptions, definitions, areas, raw data and tools etc. for data collection / processing to calculate coverage are not accessible (for the public)
4.5 Quantity of sector data / Updated data available	High All areas to be served are covered by sector reporting	Moderate Areas to be served are largely covered by sector reporting; data gaps are known	Low A significant part of the urban areas is not covered by sector reporting; data gaps are unknown
4.6 Accessibility of information through the public	High Sector reports present data / information in a way that the public is able to comprehend	Moderate	Low Sector reports present data / information in a way that the public is not able to comprehend

ANNEX 3: WATER ACCESS DATA

Burkina Faso

JMP reporting (2017)				Sector reporting (2009 to 2015)				
	2005	2015	2005	2015	2009	2015	2009	2015
Access to piped water	2.3	4.1	80%	76%	1.8	4.4	58%	90%
Un/underserved	0.6	1.3	20%	24%	1.3	0.5	42%	10%
	2.9	5.4	100%	100%	3.1	4.9	100%	100%
New people served		1.8		-5%		2.6		32%
% of urban increase served		71%				144%		
% increase in un/underserved		130%				-62%		



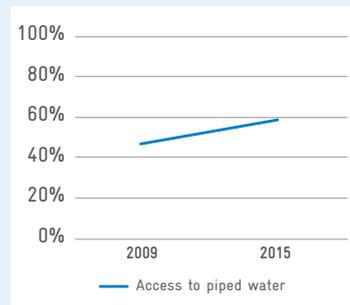
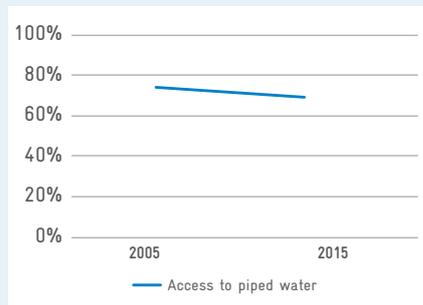
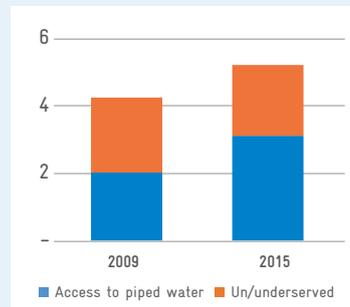
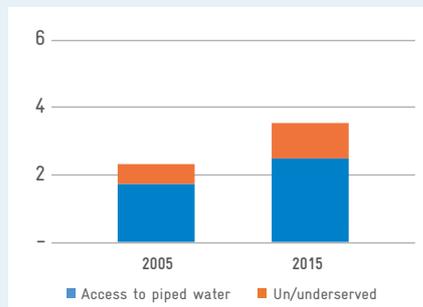
Kenya

JMP reporting (2017)

	2005	2015	2005	2015
Access to piped water	5.7	8.3	75%	70%
Un/underserved	1.9	3.5	25%	30%
	7.7	11.8	100%	100%
New people served		2.5		-5%
% of urban increase served		61%		
% increase in un/underserved		85%		

Sector reporting (2009 to 2015)

	2009	2015	2009	2015
Access to piped water	6.7	10.3	58%	59%
Un/underserved	7.4	7.1	42%	41%
	14.1	17.4	100%	100%
New people served		3.6		12%
% of urban increase served		109%		
% increase in un/underserved		-4%		



SURVEY DATA

Year	Piped total	Piped (to premises)	Piped (other)	Source
2003	70.6	50.0	20.6	DHS03
2006	74.0	49.9	24.1	IHBS06
2009	77.5	55.9	21.6	DHS09
2009		53.1		CEN09
2010	74.0	47.6	26.4	MIS10
2012	69.9	51.1	18.8	KAIS12
2014	68.3	44.9	23.4	DHS14
2015	71.6	40.9	30.6	MIS15

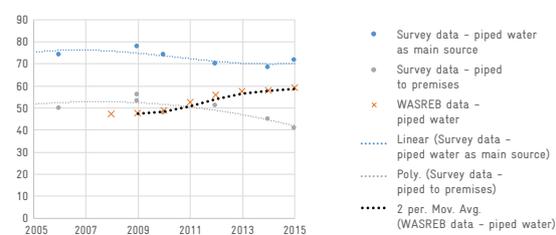
MINISTRY DATA (Joint Sector Reports)

Year	Piped total	Source
2008	47.3	IMPACT#2
2009	47.6	IMPACT#3
2010	48.9	IMPACT#4
2011	52.7	IMPACT#5
2012	55.7	IMPACT#6
2013	57.5	IMPACT#7
2014	57.9	IMPACT#8
2015	59.4	IMPACT#9

Kenya Demographic and Health Survey 2003 (adjusted for bottled water)
 Kenya Integrated Household Budget Survey
 Kenya Demographic and Health Survey 2003 (adjusted for bottled water)
 Census (moved category)
 Malaria Indicator Survey
 Kenya Aids Indicator Survey, 2012
 Kenya Demographic and Health Survey 2014 (adjusted for bottled water)
 Kenya Malaria Indicator Survey 2015 (adjusted for Bottled water and neighbour sales)

Note: WAREB data excluding small WSPs

Access to piped water in urban areas



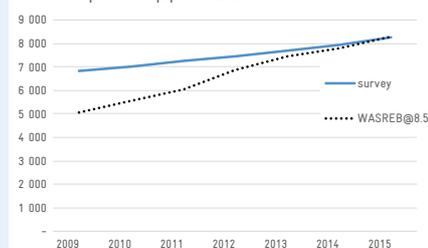
Survey data	Piped population	Other population	Total population	Connections	People/conn	
2009	75%	6 828	2 276	9 104	595	11.5
2010	74%	7 034	2 472	9 506	656	10.7
2011	73%	7 247	2 680	9 927	709	10.2
2012	72%	7 465	2 903	10 368	806	9.3
2013	71%	7 687	3 140	10 827	877	8.8
2014	70%	7 913	3 391	11 304	915	8.6
2015	70%	8 259	3 540	11 799	975	8.5
Increase growth		1 431	1 264	2 695	380	
		21%	56%	30%	64%	

WASREB	Piped population	Other population	Total population	Connections	People/conn	
2009	48%	6 732	7 401	14 133	595	11.3
2010	49%	7 579	7 911	15 490	656	11.6
2011	53%	8 153	7 310	15 463	709	11.5
2012	56%	8 867	7 040	15 907	806	11.0
2013	58%	9 197	6 791	15 988	877	10.5
2014	58%	9 726	7 059	16 784	915	10.6
2015	59%	10 342	7 072	17 414	975	10.6
Increase growth		3 610	(329)	3 281	380	
		54%	-4%	23%	64%	

People with piped water

Year	survey	WASREB@8.5
2009	6 828	5 059.08
2010	7 034	5 577.00
2011	7 247	6 022.48
2012	7 465	6 850.17
2013	7 687	7 458.15
2014	7 913	7 780.05
2015	8 259	8 287.13

People with piped water



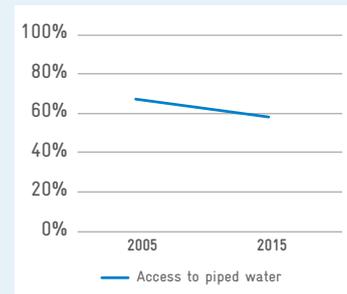
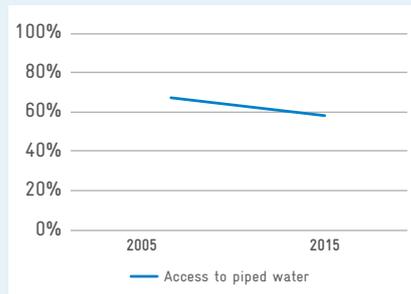
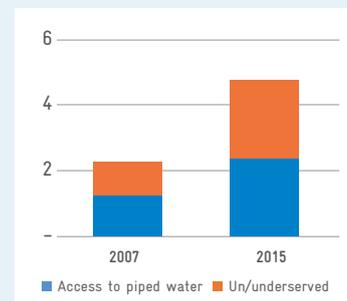
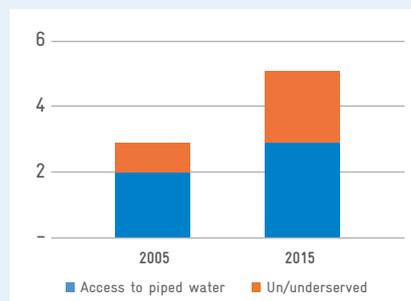
Tanzania

JMP reporting (2017)

	2005	2015	2005	2015
Access to piped water	6.6	10.0	68%	59%
Un/underserved	1.9	6.9	32%	41%
	9.7	16.9	100%	100%
New people served		3.4		-5%
% of urban increase served		47%		
% increase in un/underserved		122%		

Sector reporting (2007 to 2015)

	2007	2015	2007	2015
Access to piped water	4.3	7.9	58%	50%
Un/underserved	3.3	7.8	42%	50%
	7.6	15.8	100%	100%
New people served		3.6		-6%
% of urban increase served		45%		
% increase in un/underserved		137%		



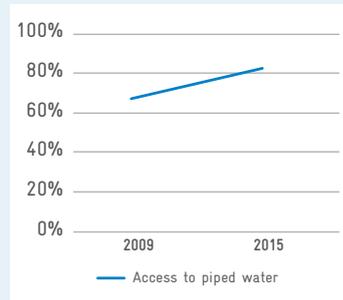
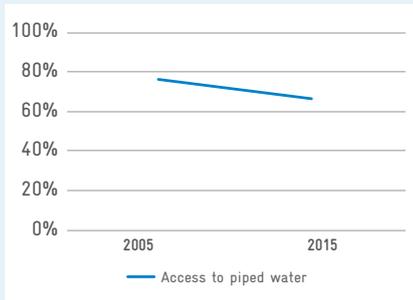
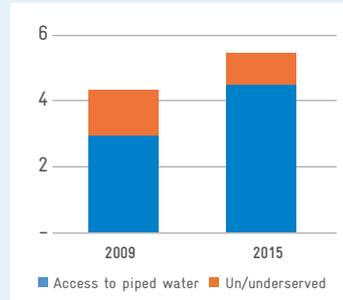
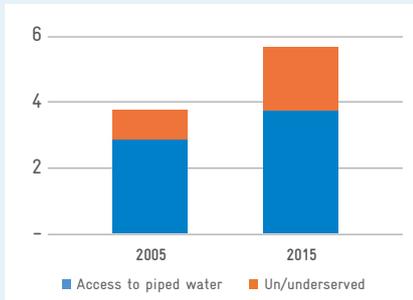
Zambia

JMP reporting (2017)

	2005	2015	2005	2015
Access to piped water	3.4	8.3	75%	70%
Un/underserved	1.0	3.5	25%	30%
	4.4	11.8	100%	100%
New people served		1.0		-5%
% of urban increase served		46%		
% increase in un/underserved		116%		

Sector reporting (2009 to 2015)

	2009	2015	2009	2015
Access to piped water	3.4	5.2	68%	83%
Un/underserved	1.6	1.1	32%	17%
	5.0	6.3	100%	100%
New people served		1.8		15%
% of urban increase served		138%		
% increase in un/underserved		-31%		



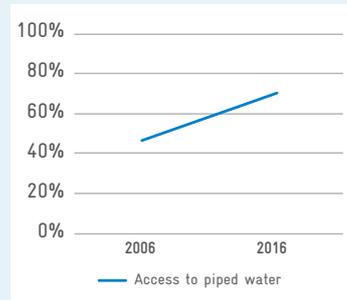
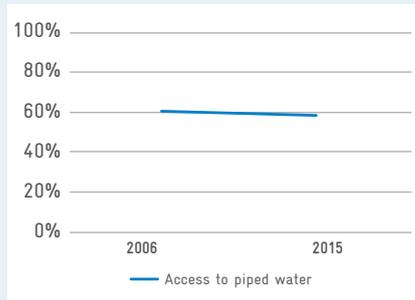
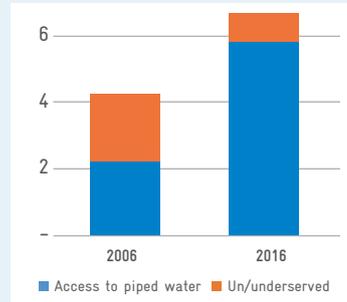
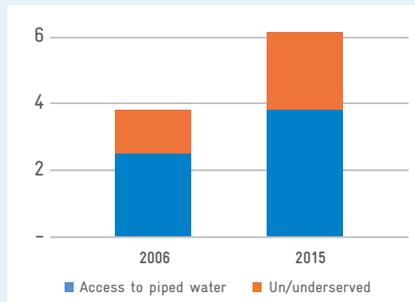
Uganda

JMP reporting (2006 to 2017)

	2005	2015	2006	2015
Access to piped water	2.4	3.7	61%	59%
Un/underserved	1.5	2.6	39%	41%
	3.9	6.3	100%	100%
New people served		1.4		-5%
% of urban increase served		56%		
% increase in un/underserved		71%		

Sector reporting (2006 to 2016)

	2006	2016	2006	2016
Access to piped water	2.2	10.3	47%	71%
Un/underserved	2.4	7.1	53%	29%
	4.6	17.4	100%	100%
New people served		3.7		24%
% of urban increase served		101%		
% increase in un/underserved		-1%		



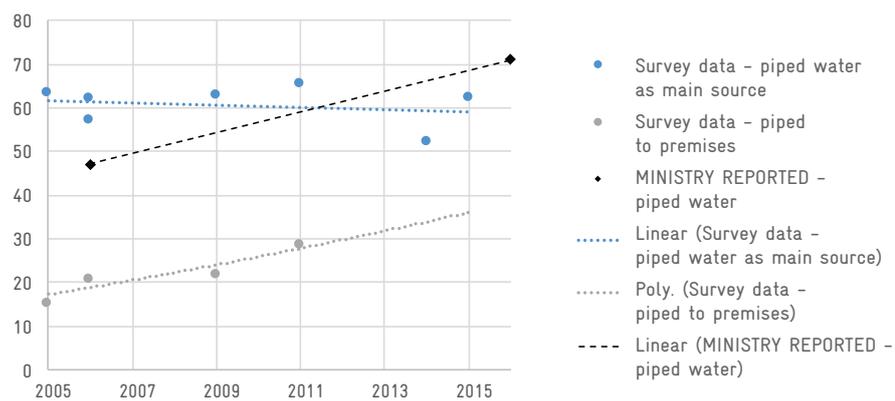
SURVEY DATA

Year	Piped total	Piped (to premises)	Piped (other)	Source
2005	63.3	15.0	48.3	DHS05
2006	61.6	20.6	41.0	NHS06
2006	56.5	20.7	35.8	DHS06
2009	64.3	21.8	42.5	NHS09
2011	63.6	28.7	34.9	DHS11
2014	51.9			CEN14
2015	62.5			MIS15

MINISTRY DATA (Joint Sector Reports)

Year	Piped total	Source
2006	47.0	SPR 2006
2016	71.0	SPR 2006

Access to piped water in urban areas





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for Economic Cooperation
and Development