



An AMCOW Country Status Overview

Water Supply and Sanitation in South Africa

Turning Finance into
Services for 2015
and Beyond



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Strategic Overview

Reform overview. South Africa underwent a major transition to a full democracy in 1994. The new government embarked on an ambitious program to eradicate backlogs in water supply and sanitation, underpinned by development of sound sector policy and legislation. Initially, this program was driven by the central government. In 2003 responsibilities for service provision were devolved to local government in line with the constitutional allocation of functions. Although much has been achieved, significant challenges remain. There is a need to build and sustain capacity at the local government level to continue to invest in, operate, and maintain services; to innovate and create more effective delivery pathways to reach the “hard to reach”; and, to improve the sustainability of services already delivered.

Progress. South Africa has met the Millennium Development Goal targets for water supply and sanitation, according to its own service level definitions (which are higher than those used internationally by the Joint Monitoring Programme). South Africa has its own ambitious service coverage targets of 100 percent coverage for both water supply and sanitation by 2014. These targets are unlikely to be met for reasons elaborated below.

Financial resources. South Africa has mobilized extensive resources to meet its service delivery targets. These are primarily through government capital grants, to provide new infrastructure, and operating grants, to support the ongoing provision of services to poor households and the government’s Free Basic Water policy. Government grant allocations to water supply and sanitation have increased significantly in real terms over the period. The use of grants from donors and external loans is insignificant in the context of the overall scale of government investment and local mobilization of resources. Anticipated investments are significant but are not sufficient to achieve universal access within the planned timeframe. This is partly due to the high cost of providing bulk water services (through regional schemes) to the remaining remote rural households and the high cost of urban sanitation (provision of waterborne systems is the accepted standard in cities and towns). The existing cost model does not cater adequately for the regional bulk infrastructure required for rural water supply schemes in areas where groundwater resources are deemed to be inadequate or unreliable.

Learning and Improving

Notwithstanding these impressive achievements, South Africa has demonstrated a willingness to seek ongoing improvements and to meet new challenges.

There remain three areas of service backlogs that are “hard to reach”: sanitation in informal settlements; water supply in deep rural areas; and rural sanitation. There is evidence that the pace of delivery in these three areas has slowed.¹ Participatory approaches for the development of rural water supply and sanitation projects, piloted and implemented in the early 1990s by nongovernmental organizations (NGOs), were largely overtaken by a government-led drive to supply new infrastructure from about 1995 onwards. Responsibility for investment and operation was later decentralized to local government in 2003. It is possible that a supply-driven and infrastructure-focused approach is less suited to addressing the remaining challenges and that delivery pathways that are more demand driven and involve communities more closely may be needed.

Although progress with investing in new infrastructure to reduce service backlogs has been impressive, this is not the whole story. Where infrastructure exists, not all poor households experience the benefits of this infrastructure as a result of a large number of poorly functioning systems in rural areas² and, in some cases, having access restricted in urban areas as a result of affordability or technical problems.³

There are also concerns related to the sustainability of the infrastructure (both the new infrastructure that has been built as well as the aging infrastructure which has been neglected in favor of extending services). The evidence for this comes from multiple sources: a significant proportion of rural water supply schemes are not functional; maintenance budgets are inadequate;⁴ many ventilated improved pit (VIP) latrines are full and are not being emptied;⁵ many wastewater treatment works are operating over capacity and/or performing poorly;⁶ there are drinking water quality risks in small towns and rural areas;⁷ the full costs of providing services are often not fully accounted for; and insufficient resources are available to the sector from user fees and government grants to maintain and sustain services over time.

There is a shortage of the necessary skills and experience at the artisan, technical, engineering, and management levels to operate, maintain, and manage water services appropriately in many municipalities.⁸ The replacement of the old apprenticeship training for artisans with a new approach has not been a success and there has been a serious loss of good artisan skills in the sector. There has been a serious reduction in the number of engineers active in municipalities to manage large infrastructure investment programs and many managers lack the necessary skills and experience.

There are also governance failures within local government, the tier of government responsible for water services provision to households in terms of the constitution. This has led to inappropriate appointments of staff and interference in the day-to-day operations of the service, to the detriment of the overall functioning and sustainability.⁹

The performance of water boards acting in support of local government has been mixed, and water boards themselves have been subject to governance instability with rapid turnover at the board and senior management levels.¹⁰

In order to address these challenges, the South African government, through collaboration between the Department of Cooperative Governance and Traditional Affairs, the Department of Water Affairs and other government departments, is implementing an intensive turnaround strategy for local government.¹¹

This second Country Status Overview (CSO2) was commissioned by AMCOW and has been produced in collaboration with the Government of South Africa and other stakeholders. Agreed priority actions to tackle these challenges, and ensure finance is effectively turned into services, have been identified here.

Agreed priority actions to tackle these challenges, and ensure finance is effectively turned into services, are:

Institutional framework

- Clarify the respective roles and responsibilities of the Departments of Cooperative Governance and Traditional Affairs and the Department of Water Affairs with respect to an effective turnaround in the performance of water services in municipalities, and clarify the respective roles of the departments of Human Settlements and Water with respect to sanitation.
- Strengthen accountability by allocating responsibility for water services from district municipalities to local municipalities where local municipalities are performing this function.
- Initiate an open debate on the respective merits of decentralized delivery of services versus regionalized delivery taking into account local circumstances.
- Strengthen mechanisms to enforce compliance with legislated standards.
- Introduce minimum competency requirements for municipal water management.

Financing

- Initiate a study to understand the reasons for high capital costs and to make recommendations for improving value for money in water and sanitation investment.
- Increase support to NGOs active in the sector.
- Actively increase the use of loan finance in the sector.

Monitoring and evaluation

- Develop a clearer understanding of recent trends in access to services.
- Simplify and rationalize local government reporting requirements for water supply and sanitation.
- Improve understanding of service outcomes, particularly health-related outcomes in relation to water and sanitation investments.

Rural water supply

- Undertake more regular surveys on the functionality and performance of rural water supply schemes.
- Develop a better understanding of the factors constraining the sustainability of rural water supplies and how these can be addressed.

Urban water supply

- Improve the quality of urban water management with a view to sound asset management, best practice network management, and appropriate pricing to ensure adequate maintenance, timely replacement of infrastructure, reduced nonrevenue water (water losses and unaccounted-for water), and wise and effective use of public resources. Implement a sound management development program for water managers.

Rural sanitation and hygiene

- Pilot a more demand-orientated approach to the provision of rural sanitation.
- Investigate the extent and seriousness of VIP latrine emptying challenges and the implications of these for policy, technology choice, and future investment programs.

Urban sanitation and hygiene

- Develop a priority national initiative on sanitation in informal settlements, particularly in large cities, pilot new approaches and seek to take these to scale.
- Explore new service delivery models for high density settlements where insecurity of tenure makes planning and implementing standard waterborne sanitation solutions difficult.

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Acronyms and Abbreviations

AfDB	African Development Bank	NGO	Nongovernmental organization
AMCOW	African Ministers' Council on Water	O&M	Operations and maintenance
CAPEX	Capital expenditure	OPEX	Operations expenditure
COGTA	(Department of) Cooperative Governance and Traditional Affairs	RSH	Rural sanitation and hygiene
CSO2	Country Status Overviews (second round)	RWS	Rural water supply
DWA	Department of Water Affairs	SALGA	South African Local Government Association
GDP	Gross domestic product	SWAp	Sector-Wide Approach
GNI	Gross national income	UNICEF	United Nations Children's Fund
HH	Household	USH	Urban sanitation and hygiene
JMP	Joint Monitoring Programme (UNICEF/ WHO)	UWS	Urban water supply
kl	kilo liter	VIP	Ventilated improved pit (latrine)
l/c/d	liters per capita per day	WASH	Water, sanitation and hygiene
M&E	Monitoring and evaluation	WHO	World Health Organization
m	meter		
MDG	Millennium Development Goal	WSP	Water and Sanitation Program
MIC	Middle income country		

Exchange rate: US\$1 = 7.34 South African Rand.¹²

1. Introduction

The African Ministers' Council on Water (AMCOW) commissioned the production of a second round of Country Status Overviews (CSOs) to better understand what underpins progress in water supply and sanitation and what its member governments can do to accelerate that progress across countries in Sub-Saharan Africa (SSA).¹³ AMCOW delegated this task to the World Bank's Water and Sanitation Program and the African Development Bank which are implementing it in close partnership with UNICEF and WHO in over 30 countries across SSA. This CSO2 report has been produced in collaboration with the Government of South Africa and other stakeholders during 2009/10.

The analysis aims to help countries assess their own service delivery pathways for turning finance into water supply and sanitation services in each of four subsectors: rural and urban water supply, and rural and urban sanitation and hygiene. The CSO2 analysis has three main components: a review of past coverage; a costing model to assess the adequacy of future investments; and a scorecard which allows diagnosis of particular bottlenecks along the service delivery pathway. The CSO2's contribution is to answer not only whether past trends and future finance are sufficient to meet sector targets, but what specific issues need to be addressed to ensure finance is effectively turned into accelerated coverage in water supply and sanitation. In this spirit, specific priority actions have been identified through consultation. A synthesis report, available separately, presents best practice and shared learning to help realize these priority actions.

2. Sector Overview: Coverage and Finance Trends

Coverage: Assessing Past Progress

The CSO2 compares countries' own estimates of coverage with data from the UNICEF/WHO Joint Monitoring Programme (JMP).¹⁴ The impact of these different coverage estimates on investment requirements is also assessed.

According to South African data and definitions, access to water infrastructure in South Africa improved from 58 percent in 1994 to 91 percent in 2009. Access to sanitation infrastructure, starting from a lower base, improved from 34 percent to 76 percent in the same period (Figure 1).^{*} Accordingly, South Africa has met the Millennium Development Goal (MDG) targets for water supply and sanitation.

This report accepts that South Africa has met the MDG target with respect to water supply even though the JMP data differs from the South African data. In terms of the JMP data, South Africa started from a higher coverage base in 1990 and has made slower progress. The conclusion from this data set is that South Africa has not

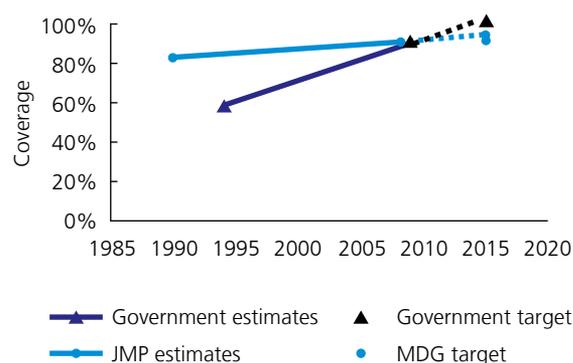
met the MDG targets. The key reason for the difference is that the South African data uses different definitions for an acceptable service compared to the JMP data. For the South African government, an acceptable basic level of service is a piped water supply within 200 m of a dwelling and a basic sanitation facility is regarded as a VIP latrine (or equivalent). These definitions are for a higher level of service compared to the JMP definitions which refer to only improved water sources and improved sanitation (including ordinary pit latrines).

Investment Requirements: Testing the Sufficiency of Finance

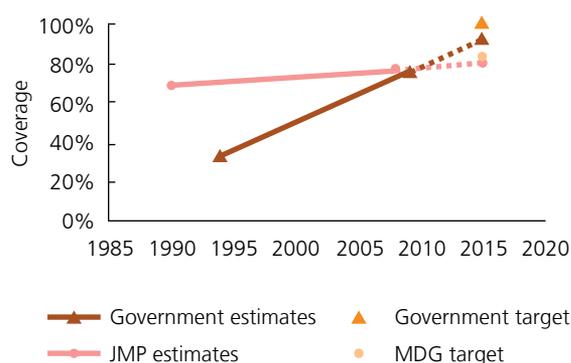
Methodology. South Africa has set itself ambitious coverage targets, aiming for universal coverage for both water supply and sanitation by 2014. The required capital investments (including major rehabilitation) have been calculated using a target of 2015 (rather than 2014) to align with the approach used in other countries and for ease of comparison between countries. The CSO2 costing model has been used, incorporating local unit cost

Figure 1
Progress in water supply and sanitation coverage

Water supply



Sanitation



Sources: JMP 2010 Report and Department of Water Affairs (DWA).

^{*} Official update 2010 report: 59 percent in 1994 to 93 percent in 2010 for water and 48 percent in 1994 to 79 percent in 2010 for sanitation.

estimates (based on a recent cost survey of engineering consultancies) and a technology mix assumed to remain constant over the period. There is a concern that the CSO2 model does not adequately account for the water resource development costs (dams and regional scheme components) for rural water supply investments, leading to an underestimation of investment requirements for rural water supply. This issue is not as pronounced for urban water supply because coverage is already very high. However, the country requires major investments in new large urban water augmentation schemes over the next 20 years. These investments have not been taken into account in the model. Lastly, in the case of sanitation, it is government policy to provide only flush toilets in urban areas. At the same time there is a need to rehabilitate, upgrade, and expand wastewater treatment works. This results in high investment requirements for urban sanitation. Anticipated investments were obtained from government medium-term (three-year) budgets extrapolated into the future (Figure 2).

Water CAPEX. Anticipated capital investment (CAPEX) for water supply is just under US\$1 billion per year, compared to a calculated required investment of US\$857 million per year (CSO2 estimate). Although this indicates that the anticipated investment is sufficient, the required investment calculation does not adequately cater for the future higher costs of rural water supply schemes. Consequently, it may be concluded that the required

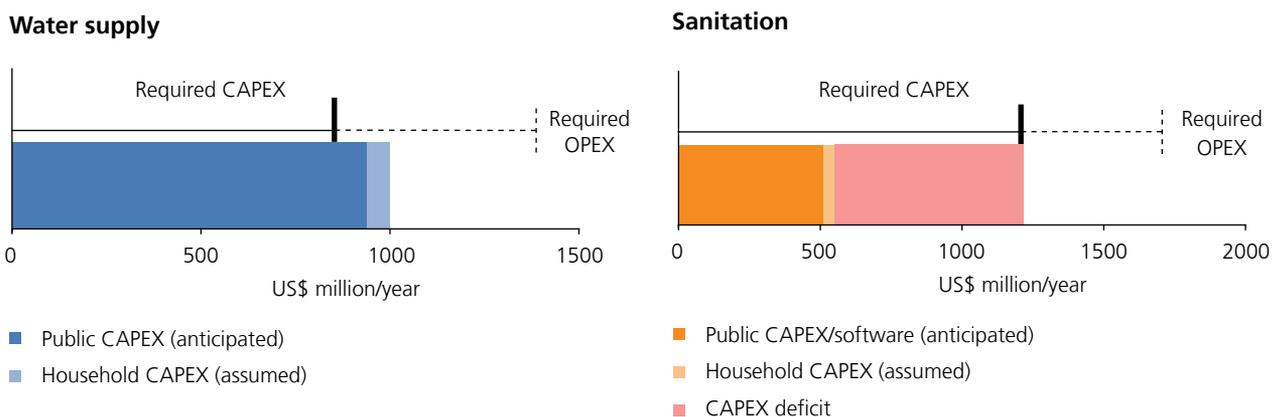
investments are likely to be underestimated and hence that anticipated investments are inadequate. The South African government estimates that the required investment to meet the total backlog (including the upgrading of water services in informal settlements in association with the housing program) by 2014 is R82 billion (US\$10.2 billion), including an investment in bulk regional infrastructure of R36 billion (US\$4.5 billion).¹⁵

Sanitation CAPEX. In the case of sanitation, the anticipated CAPEX is US\$546 million per year, compared to a calculated required investment of US\$1,218 million per year, revealing a gap of US\$672 per year. The South African government estimates that the required investment to meet the total backlog (including the upgrading of sanitation in informal settlements in association with the housing program) by 2014 is R67 billion (US\$8.5 billion).¹⁶

It should be noted that the calculated investment requirements are to provide universal access by 2015 (and not the MDG targets which have already been met). These targets are ambitious.

For these investments to be sustainable, the resources necessary to operate and maintain assets need to be mobilized on an ongoing basis. In South Africa, municipalities are responsible for operating and maintaining assets (in most cases). Municipalities are

Figure 2
Required vs. anticipated (public) and assumed (household) expenditure



Source: CSO2 costing.

Table 1
Coverage and investment figures

	Coverage		Target	Population requiring access	CAPEX requirements		Anticipated public CAPEX			Assumed HH CAPEX	Total deficit
	1990	2009			Total	Public	Domestic	External	Total		
	%	%	%	'000/year						US\$ million/year	
Rural water supply	40%	82%	100%	433	314	314	397	27	424	0	-
Urban water supply	75%	96%	100%	617	542	488	509	8	517	57	-
Water supply total	58%	91%	100%	1,050	857	802	906	35	942	57	-
Rural sanitation	13%	61%	100%	1,114	405	405	162	8	170	0	235
Urban sanitation	53%	85%	100%	1,179	813	732	336	3	339	38	437
Sanitation total	34%	76%	100%	2,292	1218	1137	497	11	508	38	672

Sources: For coverage, JMP and DWA.¹⁷

required to set aside money for the depreciation of the assets, and to budget appropriately for the operation and maintenance (O&M) of the assets.

The total annual operating and maintenance costs are estimated to be US\$530 million per year for water supply and US\$493 million per year for sanitation (Table 2). The South African government supports municipalities to provide services to poor households through the equitable share grant (an operating grant). The total grant amounted to around US\$3.2 billion in 2009. Reliable estimates on the share of this allocated to water supply and sanitation by municipalities are not available. As coverage and levels of service increase, the level of government support necessary to maintain viable municipal services will also increase. This will place additional demand on the central government budget.

South Africa has a free basic water policy. The sound intention of this policy is to supply all poor households with a basic water supply (25 l/c/d) at no cost to the household. Unfortunately, the unintended consequence of this policy is a frequent expectation on the part of households to receive free water. Consequently, municipalities receive almost no revenue from households living in rural areas, even where the level of service provided may be a yard connection. This situation creates a very high dependence on government grants to sustain the service.

Table 2
Annual OPEX requirements

Subsector	OPEX US\$ million/year
Rural water supply	149
Urban water supply	381
Water supply total	530
Rural sanitation	93
Urban sanitation	400
Sanitation total	493

Source: CSO2 costing.

The investment requirements for sanitation could be lowered if different assumptions were made with respect to service levels.

These considerations are only part of the picture. Bottlenecks can in fact occur throughout the service delivery pathway—all the institutions, processes, and actors that translate sector funding into sustainable services. Where the pathway is well developed, sector funding should turn into services at the estimated unit costs. Where it is not, the above investment requirements may be gross underestimates. The rest of this report evaluates the service delivery pathway in its entirety, locating the bottlenecks and presenting the agreed priority actions to help address them.

3. Reform Context: Introducing the CSO2 Scorecard

Prior to 1994, municipalities were responsible for providing water supply and sanitation (sewerage) services in cities and towns. The traditional rural areas were the responsibility of satellite ‘homeland’ governments set up by the apartheid state. In 1994, the new democratic government assumed responsibility for water supply and sanitation nationally and embarked on an ambitious program of delivering basic services, primarily in rural areas. A national Community Water Supply and Sanitation Program was established with dedicated funding from the national government. The program—built on the experience of the NGO, Mvula Trust, established a few years previously—had strong elements of community consultation and participation, required community contributions, used local labor to build schemes, and involved communities in the O&M of schemes.¹⁸

Political and social pressures to accelerate delivery increased over time. In response to these pressures, the private sector was used in regional large-scale build-operate-transfer contracts. The pace of delivery was substantially increased, but at a high cost per household served. In 2000, a free basic water policy was introduced as part of a broader commitment by government to provide free basic services. In 2003, rural water services assets were transferred to local government. This was in line with the constitutional allocation of powers and functions between national and local government, following the principle of subsidiarity contained within the Constitution. Meanwhile, local government had undergone its own restructuring, with the boundaries of local government reconfigured to span both urban and rural areas. In parallel to this, government’s funding policies were reformed. The dedicated water supply and sanitation funding (previously allocated to the national department responsible for water) was aggregated with other grants into a two-channel municipal grant system: a conditional capital grant and an unconditional operating grant. The capital grant, called the Municipal Infrastructure Grant, was intended to support investment in municipal infrastructure serving poor people. The role of national government thus changed from direct

involvement in project design and implementation, to that of sector leader, supporter, and regulator.

This recent history puts the service delivery pathway in context, which can then be explored in detail using the CSO2 scorecard, an assessment tool providing a snapshot of reform progress along the service delivery pathway. The CSO2 scorecard assesses the building blocks of service delivery in turn: three building blocks which relate to enabling services, three which relate to developing new services, and three which relate to sustaining services. Each building block is assessed against specific indicators and scored from 1 to 3 accordingly.¹⁹

A major driver for sector reform has been the national political priority to rapidly provide basic services to households previously disadvantaged under the apartheid government. A second driver of reform has been the Constitutional imperative to devolve the responsibility of water services to local government. A third driver of reform has been the reform of inter-governmental funding, moving from dedicated and project-based funding to an approach of “budget support” between national and local government, within a stable and predictable medium-term (three-year) budgeting framework.

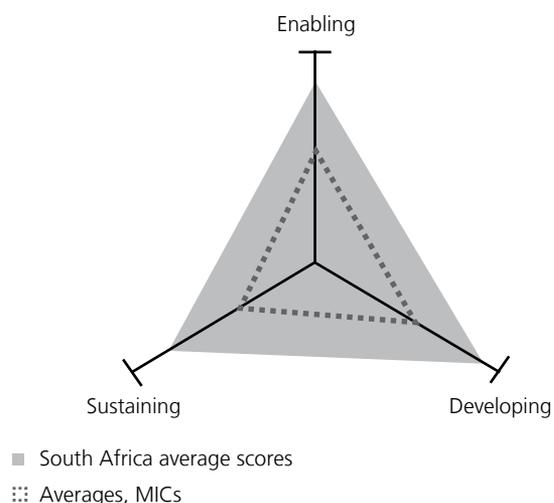
The enabling environment for facilitating service delivery in South Africa is well developed. The policies and legislation were developed early in the reform process (with sanitation policy lagging a little behind), and provided a sound basis on which to proceed. For example, the Community Water Supply and Sanitation program was accompanied by a White Paper, one of the first policy papers of the new government. Sector legislation was promulgated within four years of the new government coming into power. These policies enabled a consistent Sector-Wide Approach (SWAp) to be developed and implemented. Budget reform facilitated delivery too. Initially, dedicated program budgets were created at the national level. Later, this evolved to budget support to municipalities, when they became responsible

for providing and sustaining services. The parallel reform of local government budgeting also supported the process. The Masibambane (“let us work together”) program promoted a SWAp with donor support.²⁰ For these reasons, South Africa compares well against its peer group of middle-income countries (MICs),²¹ with a higher average score for enabling building blocks (see Figure 3).

South Africa has also performed well with respect to the ‘developing’ building blocks. The stable budgeting framework has enabled good spending performance and reporting on outcomes against budget. Criteria for the allocation of grant budgets from national government to local government are clearly defined and allocations are equitable. Local governments must involve communities in their planning and budgeting processes in terms of legislative requirements. The Fiscal and Finance Commission regularly reviews the fairness of budget allocations and outcomes. Service output performance is generally good. Subsidies are largely spent as intended, drinking water quality is monitored, and hygiene promotion and monitoring tools have been developed.

The main challenges for South Africa lie in the area of sustaining services. Maintenance expenditure is not adequate and there are insufficient resources from tariffs and subsidies to properly sustain the service. There are also critical skills shortages, particularly at the technical and management levels. Nevertheless, South Africa performed well relative to its peers in this area too.

Figure 3
Average scorecard results for enabling, sustaining, and developing service delivery, and peer-group comparison



Source: CSO2 scorecard.

Sections 4 to 6 highlight progress and challenges across three thematic areas—the institutional framework, finance, and monitoring and evaluation (M&E)—benchmarking South Africa against its peer countries based on a grouping by gross national income. The related indicators are extracted from the scorecard and presented in charts at the beginning of each section. The scorecards for each subsector are presented in their entirety in Sections 7 to 10.

Table 3
Key dates in the reform of the sector in South Africa

Year	Event
1994	First democratic elections and new emphasis on meeting the basic needs of all citizens. Community Water Supply and Sanitation White Paper adopted and investment program launched
1996	Constitution finalized and adopted, allocating the functions of water supply and sanitation services provision to local government
1997	Water Services Act promulgated, defining the role of DWA as regulator, the role of water boards as bulk providers and the role of municipalities as responsible for provision
1998	National Water Act promulgated, redefining water rights in South Africa (away from riparian and first-use system) and establishing a new framework to manage and regulate water resources
2000, 2001	Democratic local government established, local government legislation introduced, new decentralized financial framework introduction. Basic Household Sanitation Policy adopted, with a focus on grant-funded basic sanitation provision in rural areas
2002	Free Basic Water Policy introduced with intention to provide all poor households with a free basic supply of water (25 l/c/d or 6 kl per connection per month)
2003	The Strategic Framework for Water Services approved. Updated water policy document. More emphasis is placed on performance, sustainability, and moving to higher levels of service
2000 to 2010	DWA shifts its role from implementer and operator of schemes to supporter of local government. A Joint National Support Strategy adopted (2007)
2009	The sanitation function is moved from DWA to the National Department of Sustainable Human Settlements (housing)
2010	DWA changes emphasis from support to regulation. The National Water Services Regulation Strategy is adopted, emphasizing drinking water quality and wastewater quality monitoring through Blue and Green Drop programs. Sanitation allocated to national Department of Human Settlements
2010	Turnaround strategy for local government approved by Cabinet and the implementation of the strategy rolled out by Department of Cooperative Governance and Traditional Affairs, in collaboration with DWA and other government departments
2010	National Planning Commission established in the Office of the President. Water identified as an important focus area for the Commission

Source: Various.

4. Institutional Framework

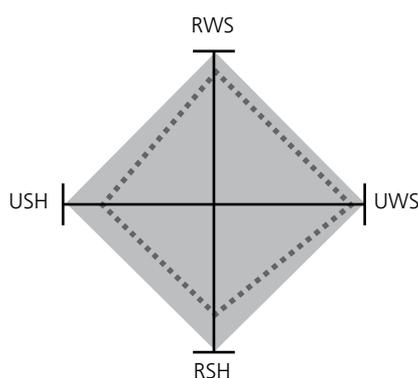
Priority actions for institutional framework

- Clarify the respective roles and responsibilities of the Departments of Cooperative Governance and Traditional Affairs and the Department of Water Affairs with respect to an effective turnaround in the performance of water services in municipalities.
- Clarify the respective roles of the departments of Human Settlements and Water with respect to sanitation.
- Reduce/diffuse accountability by allocating responsibility for water services from district municipalities to local municipalities where local municipalities are performing this function.
- Initiate an open debate on the respective merits of decentralized delivery of services versus regionalized delivery taking into account local circumstances.
- Investigate factors underlying recent trends in service delivery.
- Strengthen mechanisms to enforce compliance with legislated standards.
- Introduce minimum competency requirements for water management.

South Africa has established clear sector goals and targets, has a sound policy and legislative framework for the sector, and has clearly defined the roles and responsibilities of institutions active in the sector. The Department of

Cooperative Governance and Traditional Affairs (COGTA) has oversight of local government while the Department of Water Affairs (DWA) supports and regulates local government with respect to water services (in collaboration with COGTA and the provincial governments).

Figure 4
Scorecard indicator scores relating to institutional framework compared to peer group (see endnotes)²²



■ South Africa average scores
::: Averages, MICs

Source: CSO2 scorecard.

For these reasons, scores for related scorecard indicators compare well relative to other middle income countries participating in the CSO2 (Figure 4). Nevertheless, there are some gaps and challenges. The responsibility for sanitation has recently been reallocated to the Department of Human Settlements and the relative roles of this department and the DWA must still be worked out. National government sets national targets but responsibility rests with local government to deliver. National government provides general budget support to local government (capital and operating grants) but does not control how this money is locally allocated and spent. There is a lack of clarity with respect to the responsibility for hygiene promotion and how this relates to new sanitation investments. These and other institutional challenges are elaborated below.

Respective roles of Departments of Water and Human Settlements. The Water Services Act addresses both water supply and sanitation and gives the DWA a very clear regulatory role with respect to both water supply

and sanitation services. The implications of allocating the responsibility for sanitation to the Department of Human Settlements need to be addressed within this context.

Targets and decentralization. There is an inherent tension between the setting of national targets and achievement of these targets in the context of decentralized service delivery. National government can increase budget support to local government but does not control local service delivery choices. These are subject to local democratic processes within a national legislative framework. For example, the equitable share to local government is an unconditional operating grant.

Accountability between tiers of local government. A distinctive feature of South African local government is its two-tier structure, with wall-to-wall local government at both the local and district level. The responsibility for water provision is allocated to either the district or local municipality. However, it is common practice for a district municipality (that has been allocated the responsibility for water services) to ask a local municipality within its area to undertake water services provision on its behalf. Problems have been experienced with this arrangement, which are typically related to clarity of roles and responsibilities, allocations of budgets, and addressing instances of poor performance.

Local government capacity. Many municipalities struggle to attract and retain the necessary managerial and technical skills and experience to manage water services operations adequately.

The role of water boards. Prior to 1994, water boards sold bulk treated water to municipalities and mines. After 1994 the role of water boards was expanded. From 1994 to 2003 some water boards operated rural water supply schemes on behalf of the DWA. These assets were then transferred to local government. Water boards can still play a support role to municipalities, and can be contracted by municipalities to manage and/or operate municipal water systems on behalf of municipalities. There is a national debate under way on the future role of water boards. Should water boards be mandated to manage bulk and/or retail water services in terms of a regionalized provision model (such as that in existence in Brazil)? What are the Constitutional implications of this choice? Bearing in mind that the full decentralization of service delivery responsibilities to local government is very recent (2003), is it too soon to be reconsidering this choice?

Urban bias and preference for service upgrades. The decentralization of service delivery to local government, together with the design of the local government system, has arguably led to a tendency towards urban bias as well as a preference for investment in service upgrades rather than provision of services to marginalized rural communities. Whereas national government prioritized investments to communities without services, and provided a basic level of service, the outcomes-based survey evidence suggests that spending has shifted to providing higher levels of service possibly at the expense of providing basic services to the unserved.²³

Community-based operations. Although South Africa has good experience with community-based operation of rural water supply systems, there appears to have been a tendency for municipalities to take over these operations itself. Ironically, the decentralization of service delivery to municipalities seems to have been accompanied by a 'centralization tendency' among the municipalities themselves.

Role of the private sector. South African water policy and legislation contain a policy bias towards public management of water services. Nevertheless, South Africa has had both varied and good experiences with the participation of the private sector. The build-operate-train-transfer contracts to deliver rural water supply infrastructure at scale were arguably a success if measured against the primary goals of scale and speed. The five-year management contract for Johannesburg Water is widely regarded as a success. Perspectives differ on the merits and benefits of the small number of concession and lease contracts. These are generally not favored by municipalities. Nevertheless, the private sector still plays an active role in supporting municipalities. This role goes beyond its extensive role in design and construction, and includes management and operational support.

Pricing. National government sets norms and standards for the pricing of water, but local government is free to determine its own price levels within this guiding framework.

Enforcement. The relative emphasis between national government support to local government and the enforcement of regulated standards needs to be clarified. Mechanisms to effectively enforce compliance need to be strengthened.

5. Financing and its Implementation

Priority actions for financing and its implementation

- Initiate a study to understand the reasons for high capital costs and to make recommendations for improving value for money in water supply and sanitation investment.
- Increase support to NGOs active in the sector.
- Actively increase the use of loan finance in the sector.

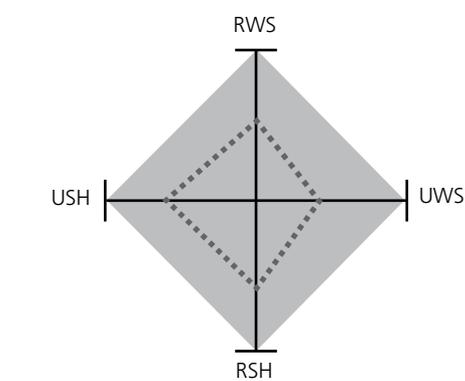
Substantial reform of South Africa’s public financial management policies and processes stands out as a major achievement and a key enabler of effective spending on water supply and sanitation investments. South Africa adopted a sectorwide approach early on, set targets to achieve universal coverage, mobilized its resources, developed the necessary plans and translated these into budgets, monitored spending against budgets and achieved a high level of spending. Consequently, South Africa has performed well relative to its peers (Figure 5).

Key reforms have helped establish this sound financial framework: of budgeting, financial management, and government grants. South Africa adopted a medium-term income and expenditure budgeting framework soon after 1994 at the national level and then extended this to the local government level later on. This created a stable and predictable basis for planning investments.

The budget reform was accompanied by a more extensive reform of the financial management, accounting and reporting systems, including the development of new legislation.²⁵ This created the necessary basis for sound accounting standards, common reporting, and clearly regulated procurement processes. These reforms have played a very significant enabling role for government in general, and have also benefited the water sector.

Grant reform also began soon after 1994, with a dedicated grant to support the Community Water Supply and Sanitation program. This grant was managed by the national DWA which procured directly on a project-by-project basis. This proved to be cumbersome and the process of procurement was accelerated through contracting intermediary ‘implementing agents’. These agents in turn procured on a project-by-project basis. The practice evolved to larger build-operate-train-transfer contracts with the private sector. To coincide with the reform of local government, the numerous sector-based government grants were consolidated into a two-channel grant system comprising a capital grant and an unconditional operating grant. These grants are, in effect,

Figure 5
Scorecard indicator scores relating to financing and its implementation, compared to peer group²⁴



■ South Africa average scores

::: Averages, MICs

Source: CSO2 scorecard.

budget support grants to local government. The grants are stable, predictable, and allocated equitably between municipalities.²⁶

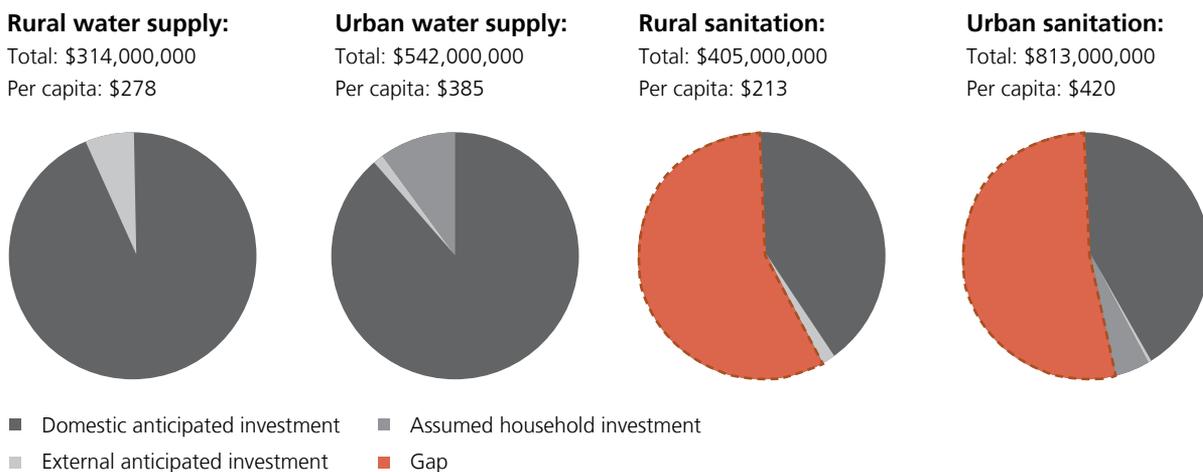
Notwithstanding these significant achievements, there still is room for improvement in some areas. These are elaborated below.

Support to NGOs. Over 95 percent of sector funding has been direct government funding and loan financing. There is very limited donor support (Figure 6). The majority of the donor support has been through a sectorwide program called Masibambane.²⁷ An unintended consequence of this is that NGOs, historically strong and a source of innovation in the sector, have struggled. The major water NGO, Mvula Trust, for example, must rely on contracts from government to survive.

Crowding out private finance. It is possible that the very significant increases in government grants have crowded out the use of loan finance in some municipalities. The extensive availability of grants may also have lowered household willingness to invest in water supply and sanitation improvements.

Value for money. South Africa's average per capita investment requirement is expensive compared to the region (Figure 6). Although this is partly the result of higher service levels, this also points to possible inefficiencies within a sector context of investment driven by government grants and a lack of strong competitiveness in the procurement environment. The South African government's estimates of the annual capital investment requirements are considerably higher than those estimated in this report.²⁸

Figure 6
Overall annual and per capita investment requirements and contribution from different sources



Source: CSO2 costing.

6. Sector Monitoring and Evaluation

Priority actions for sector monitoring and evaluation

- Develop a clearer understanding of recent trends in access to services.
- Simplify and rationalize local government reporting requirements for water supply and sanitation.
- Revise water supply and sanitation access targets.
- Improve understanding of service outcomes, particularly health-related outcomes in relation to water supply and sanitation investments.

South Africa has a relatively well-developed monitoring and evaluation (M&E) framework with strong scores on related scorecard indicators, relative to its peers (Figure 7). Sector targets are set, reviewed regularly and progress is measured against them. Overall spending on water supply and sanitation is identifiable and donor funding is included in government budgets. The equity of subsidy allocations is periodically reviewed. Sector outputs such as drinking water quality and wastewater discharge compliance are monitored. Regular national household surveys are

conducted and these include questions on access to water supply and sanitation, and service quality. Nevertheless, some areas of monitoring and evaluation can be improved. Some challenges are elaborated below.

Understanding urban and rural performance.

The design of the local government system (including the boundaries, financial system, reporting system and so on) does not lend itself to a clear differentiation and understanding of urban and rural subsector performance. For the purposes of this report, municipalities that serve metropolitan areas, cities, and large towns are assumed to be urban, and municipalities that serve small towns and the traditional rural areas are assumed to be rural.³⁰

Reconciliation of JMP and country baseline data.

There is a large difference between the JMP and country data for the baseline, though the data is more closely aligned for 2009.

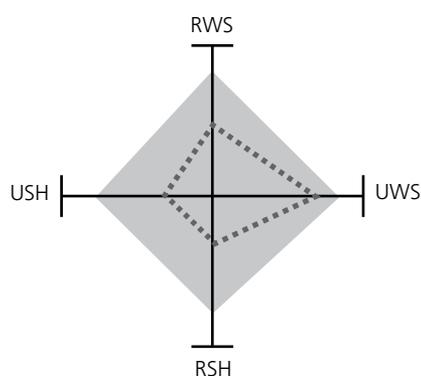
Understanding recent trends in access to services.

Different sources of data show different trends in access to services. The recent general household surveys, for example, show declining performance in household access to basic water supply and sanitation services.

Understanding financial performance.

In the absence of better financial ring-fencing of the water services function within municipalities, it is difficult to properly understand the financial performance of water services.

Figure 7
Scorecard indicator scores relating to sector M&E, compared to peer group²⁹



■ South Africa average scores

::: Averages, MICs

Source: CSO2 scorecard.

Revising sector targets. The current sector targets (to achieve universal access by 2014) are unrealistic and need to be revised.

Municipal reporting. Municipal reporting on water services compliance and performance is poor. Current reporting requirements are too onerous. Too much detail is required and reporting requirements to different national departments are overlapping and duplicated. There is a need for the rationalization and simplification of reporting requirements.

Reporting on spending efficiency. There is a need for a greater emphasis on value for money when reporting on grant spending.

Understanding citizen perspectives. Much of the reporting on sector performance is 'technocratic'. These statistics tend to hide poor persons' everyday experiences of services. There is a need to deepen understanding of, and to improve reporting on, citizen perspectives on service access and quality. The 'citizen voice' initiative is a good starting point from which to develop this area further.

7. Subsector: Rural Water Supply

Priority actions for rural water supply

- Improve national-level knowledge of the status of rural water supply schemes, including more regular surveys on their functionality and performance.
- Develop a better understanding of the factors constraining the sustainability of rural water supplies and how these can be addressed.

South Africa’s own country data show good progress in access to a piped water supply within 200 meters, starting from a low base. The JMP data also shows progress, but from a much higher base and consequently at a slower pace. The differences arise from a difference in service level definitions.

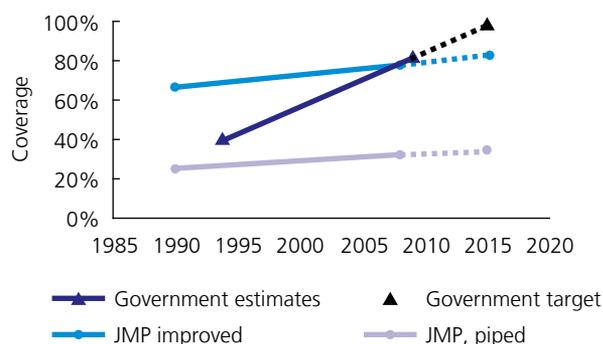
For practical reasons, the universal coverage target for 2014 is unlikely to be met, notwithstanding the trend shown. The pace of delivery in rural areas has also slowed (notwithstanding the simplified linear depiction in Figure 8). There are concerns related to the functionality and sustainability of rural water supply schemes.

CAPEX requirements are estimated to be about US\$314 million per year. These requirements are less than

the anticipated CAPEX of over US\$400 million per year. However, it is likely that the required CAPEX is underestimated because the underlying unit costs do not take into account the cost of water resource development and the high costs of regional schemes. There is very little, if any, cost-recovery from users, hence the anticipated capital investment grants will also need to meet the burden of O&M costs. Additional OPEX (and hence grant) requirements are estimated at US\$149 million per year.

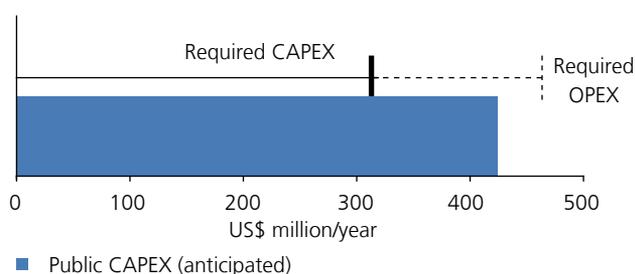
Figure 10 shows the scorecard results for the rural water supply service delivery pathway. The scorecard uses a simple color code to indicate: building blocks that are largely in place, acting as a driver on service delivery (score >2, green); building blocks that are a drag on service delivery and require attention (score 1–2, yellow); and building

Figure 8
Rural water supply coverage



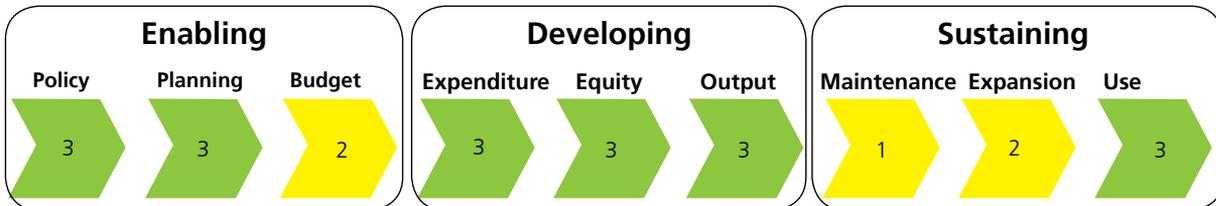
Sources: JMP 2010 Report/DWA.

Figure 9
Rural water supply investment requirements



Source: CSO2 costing.

Figure 10
Rural water supply scorecard



Source: CSO2 scorecard.

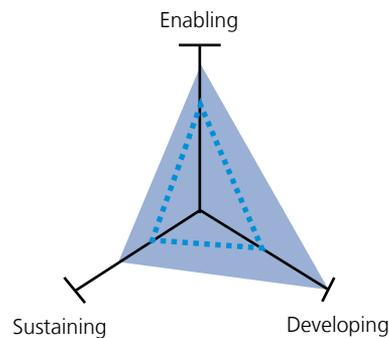
blocks that are inadequate, constituting a barrier to service delivery and a priority for reform (score <1, red). As can be seen, South Africa’s service delivery pathway registers high scores—an impression confirmed by comparing the average results to its peer group (Figure 11). There are, nonetheless, areas for attention around budgeting, and improving the sustainability of rural systems:

Enabling environment. The enabling environment for rural water supply is generally sound with good policy and planning.

Rural water budgets not separately identifiable. The local government financial reporting systems do not facilitate the separate identification of spending on rural water systems; instead reporting is for water expenditure as a whole, which may include both urban and rural settlements within a municipality.

Uneven knowledge of rural water infrastructure. The state of knowledge of the condition and functioning of rural water supply assets varies by municipality and, at a national level, is inadequate. Regular national or regional surveys are not undertaken.

Figure 11
Average RWS scorecard scores for enabling, sustaining, and developing service delivery, and peer-group comparison



■ South Africa average scores
▤ Averages, MICs

Source: CSO2 scorecard.

Sustainability of rural water supply systems. The funding of the O&M costs for rural water supply systems are almost entirely reliant on national government grants.

8. Subsector: Urban Water Supply

Priority actions for urban water supply

- Improve the quality of urban water management with a view to sound asset management, best practice network management, and appropriate pricing to ensure adequate maintenance, timely replacement of infrastructure, reduced water losses and unaccounted-for water, and wise and effective use of public resources. Implement a sound management development program for water managers.

Urban water coverage is 96 percent according to South African Government data, and 99 percent according to JMP data. The difference is most likely due to the definition of urban areas used in this report.³¹

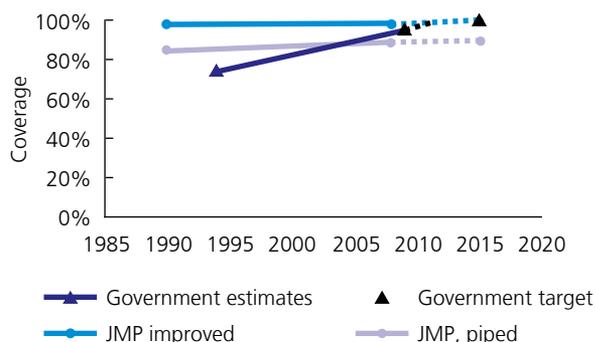
Although this level of coverage is excellent, and includes many households living in informal settlements, some households experience restricted access that may be less than 50 liters per person per day. These problems typically arise due to technological and management problems rather than as a result of policy.

The anticipated public CAPEX of over \$500 million per annum, supplemented by an additional 10 percent user contribution, is sufficient to meet the CSO2's estimate of

investment requirements. This estimate does not take into account major bulk water augmentation schemes whose costs are recovered through the water tariff. South Africa will need to, and plans to, invest significantly in water resource development costs for its major urban areas.

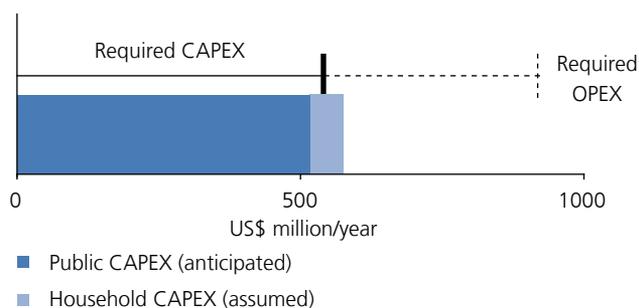
South Africa performs well in the urban water supply subsector in all of the elements measured in the scorecard (Figure 14), and is ahead of its peer group (Figure 15). The budgeting system is sound but the local government framework does not facilitate separate identification of urban (versus rural) expenditure. There are also still areas of concern related to unaccounted-for water, maintenance expenditure, network asset management, and pricing.

Figure 12
Urban water supply coverage



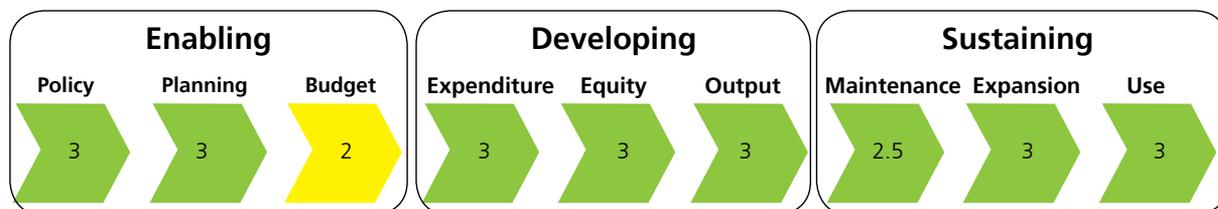
Sources: JMP 2010 Report/DWA.

Figure 13
Urban water supply investment requirements



Source: CSO2 costing.

Figure 14
Urban water supply scorecard



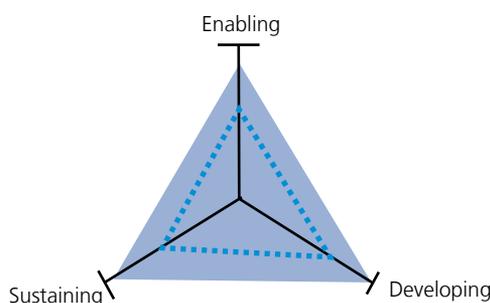
Source: CSO2 scorecard.

Reducing unaccounted-for water. South Africa is a water scarce country and needs to use its water resources wisely. Water losses and unaccounted-for water are excessive compared to best practice.

Maintenance and network asset management. When municipal financial budgets are under pressure it is often the maintenance budget that is sacrificed. There is evidence that there is inadequate spending on the maintenance and rehabilitation of water assets in South Africa’s urban areas leading to a deterioration of the assets over time. This results in higher water losses and will require costly investments in the future.

Pricing. South Africa has a free basic water policy with the intention of making available at least 25 l/c/d (and preferably 50 l/c/d) of water available to poor households, at no cost to the household. National government provides an operating grant to municipalities that can be used to support the implementation of this policy at the local level. Beyond this, water should be priced at its full cost to ensure financial viability and sustainability. In many

Figure 15
Average UWS scorecard scores for enabling, sustaining, and developing service delivery, and peer-group comparison



■ South Africa average scores
 ■ Averages, MICs

Source: CSO2 scorecard.

cases water is underpriced and hence the water service is underresourced, contributing to the lack of maintenance and rehabilitation identified above.

9. Subsector: Rural Sanitation and Hygiene

Priority actions for rural sanitation and hygiene

- Pilot a more demand-orientated approach to the provision of rural sanitation.
- Investigate the extent and seriousness of VIP latrine emptying challenges and the implications of these for policy, technology choice, and future investment programs.

Impressive progress has been made from a low base, according to South African government data. The JMP data uses a less stringent definition of an acceptable sanitation facility (pit latrine rather than a VIP latrine or equivalent) and hence has a higher base value, depicting a slower trend.

South Africa has met the rural share of the MDG target in terms of its own definitions, but is unlikely to meet its own ambitious universal access target for 2014 for reasons that include practicality (the pace and scale required is much higher than past performance achieved) and availability of funds.

The anticipated CAPEX investment (for hardware) of around US\$170 million per year is less than half the CSO2 estimate of required CAPEX, of around US\$400 million per year. Additional OPEX will increase the pressure on government grants. Government fully subsidizes both

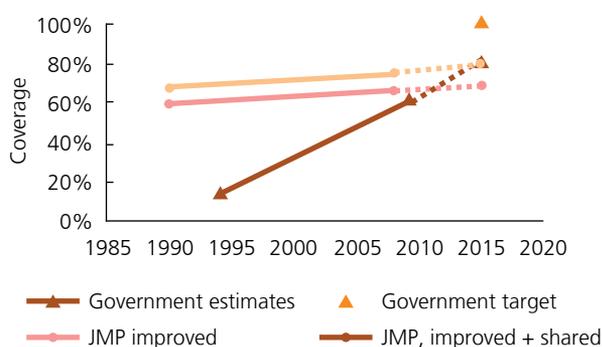
the infrastructure and operating cost of rural household sanitation facilities. In terms of policy, investment in sanitation facilities must be accompanied by hygiene education, which will carry additional costs.³²

According to the CSO2 scorecard, South Africa compares well relative to its peers in putting in place an effective service delivery pathway for rural sanitation (Figure 19), registering high scores in most building blocks (Figure 18). Nevertheless, there are challenges.

Rural sanitation budget. The rural sanitation budget is insufficient to meet the targets set. The local government structure does not facilitate dedicated focus on, or reporting of, rural sanitation spending.

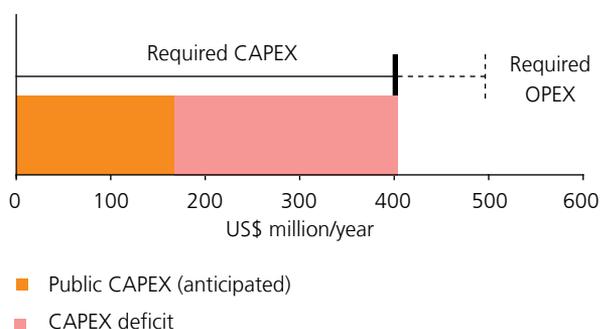
Infrastructure-led approach. The South African government has invested significantly in the provision of infrastructure (toilet facilities), with benefits in terms of

Figure 16
Rural sanitation coverage



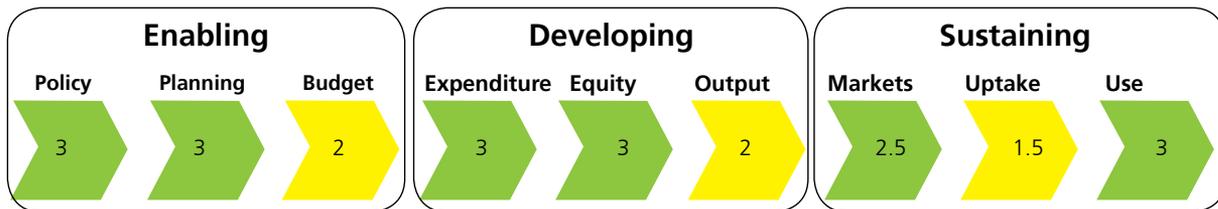
Sources: JMP 2010 Report/DWA.

Figure 17
Rural sanitation investment requirements



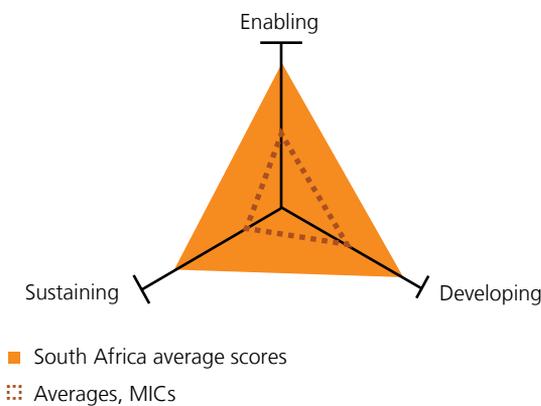
Source: CSO2 costing.

Figure 18
Rural sanitation and hygiene scorecard



Source: CSO2 scorecard.

Figure 19
Average RSH scorecard scores for enabling, sustaining, and developing service delivery, and peer-group comparison



Source: CSO2 scorecard.

speed and scale. However, it is not clear to what extent these investments can be associated with improvements in health outcomes. The current approach may need to be complemented with a more demand-led approach in those rural areas still without adequate sanitation.

Monitoring quality of uptake. Monitoring the quality of uptake (in terms of health outcomes achieved) needs to be improved through, for example, more regular and widespread use of household surveys.

Promoting sanitation and health. Tools for promoting sanitation and hygiene have been developed but have not been implemented at scale.

Local employment generation. A large-scale rural infrastructure program has the potential to generate local employment opportunities. Arguably more can be done to promote local economic benefits associated with the rural sanitation program.

Lifespan of rural VIP toilets. Many VIP latrine toilets have filled up much more quickly than anticipated. The cost of emptying VIP latrine toilets is prohibitively high in rural areas due to the high transport costs, and the frequent emptying of these toilets presents a significant financial burden on households and/or municipalities. The responsibility for toilet emptying is also not clearly defined.

10. Subsector: Urban Sanitation and Hygiene

Priority actions for urban sanitation and hygiene

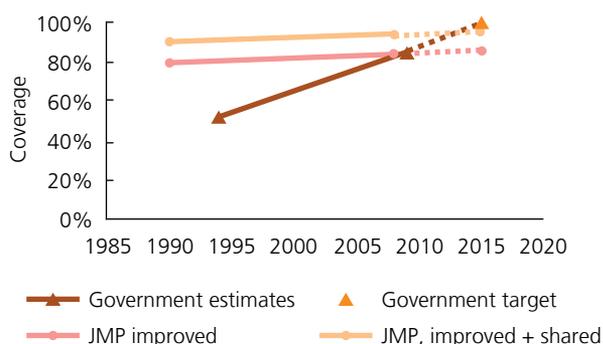
- Develop a priority national initiative on sanitation in informal settlements, particularly in large cities, pilot new approaches and seek to take these to scale.
- Explore new service delivery models for high density settlements where insecurity of tenure makes planning and implementing standard waterborne sanitation solutions difficult.

South Africa has made good progress in access to basic sanitation in urban areas in terms of its own country definitions and according to its data has surpassed the urban share of the MDG target. The JMP data shows slower progress, but from a much higher base, due to differences in definitions used (the JMP definition regards a pit latrine as improved sanitation.) South Africa has an ambitious universal access target for urban areas by 2014. This target is unlikely to be met. The main reason has to do with the difficulty of providing adequate sanitation facilities in urban informal settlements (where much of the remaining backlog lies) and in keeping pace with the growth of these settlements. Insufficient public funding is also a factor (see Figure 21).

Anticipated public CAPEX for urban sanitation infrastructure of around US\$340 million per year, with an additional 10 percent assumed user contribution, is less than half the US\$800 million per year estimated by the CSO2 to be required to meet the subsector target. OPEX requirements of about \$400 million per year will require additional government grant funding due to the South African government's policy of supporting the operating cost of providing basic services to poor households, and are thus likely to present a further strain on anticipated public spending.

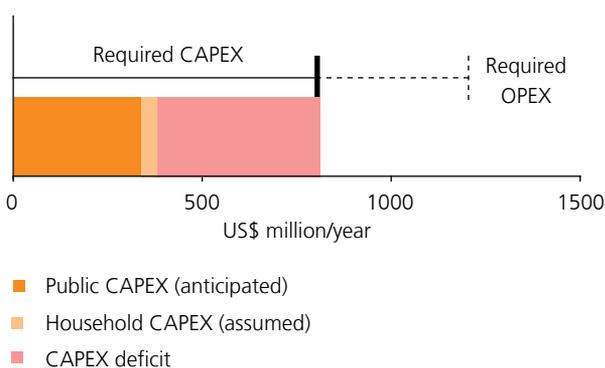
As for rural sanitation, the CSO2 scorecard indicates a strong performance throughout the urban sanitation

Figure 20
Urban sanitation coverage



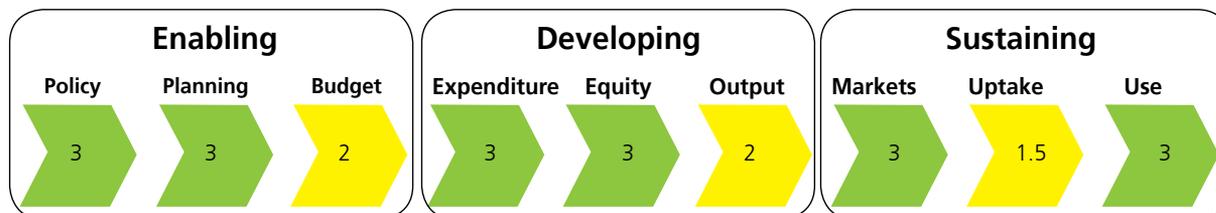
Sources: JMP 2010 Report/DWA.

Figure 21
Urban sanitation investment requirements



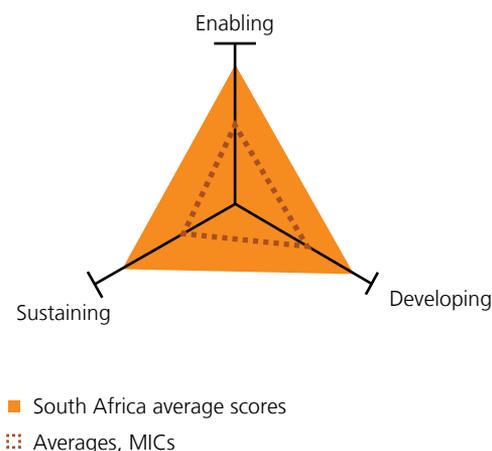
Source: CSO2 costing.

Figure 22
Urban sanitation and hygiene scorecard



Source: CSO2 scorecard.

Figure 23
Average USH scorecard scores for enabling, sustaining and developing service delivery, and peer-group comparison



Sources: CSO2 scorecard.

service delivery pathway (Figure 22), and South Africa again outperforms its peers by some margin (Figure 23). Nevertheless, important challenges remain.

Sanitation in informal settlements. Providing adequate sanitation to South Africa’s large and growing

urban informal settlements is a complex challenge—this is, arguably, the single greatest challenge facing the water supply and sanitation sector in South Africa. The latest data show that between 1 and 2 million households live in informal settlements in South Africa. High settlement densities, insecurity of tenure, and complex community dynamics make planning and implementing standard infrastructure solutions difficult, if not impossible. A willingness to explore new delivery models, together with careful planning, reflective learning and engagement with local communities, are required.

Cost-effectiveness. Investment requirements for sanitation are higher than those for water supply. It is particularly important that these investments represent good value for money.

Flush sanitation and water scarcity. Within a context of water scarcity, and increasing pressures on water resources, the appropriateness of the conventional practice of waterborne sanitation will need to be re-examined when making future investment choices, particularly in the dryer and more water-scarce parts of South Africa.

Quality of outcomes. There is a need for greater understanding of the impact of urban sanitation on health outcomes.

Notes and References

- ¹ The last two General Household Surveys and the Community Survey of 2007 show a stable or declining access to basic services.
- ² For example, a survey of rural water schemes in KwaZulu-Natal in 2003 revealed that only 74 percent of schemes were functional and that more than half of the functioning schemes were not meeting the basic minimum standard. Hemson, D. 2003. The sustainability of community water projects in KwaZulu-Natal.
- ³ Some cities, for example, have implemented flow-restriction devices or prepayment meters. While their intention is to support the provision of a free basic amount of water each month, the practical implementation has been problematic, with households denied access due to faulty or leaking meters.
- ⁴ See, for example, South African Institute of Civil Engineering. 2006. The SAICE Infrastructure Report Card for South Africa: 2006.
- ⁵ A study to evaluate the sustainability of all sanitation facilities built in 2004–09 has been commissioned by the Department for Human Settlements.
- ⁶ Department of Water Affairs (DWA). 2009. Green Drop Report 2009: South African Wastewater Quality Management Performance.
- ⁷ DWA. 2010. Blue Drop Report 2010: South African Drinking Water Quality Management Performance.
- ⁸ Lawless, A. 2005. Numbers & Needs: Addressing Imbalances in the Civil Engineering Profession.
- ⁹ The Local Government Turnaround Strategy described the governance problem as follows: "Political parties that are undermining the integrity and functioning of municipal councils through intra- and inter-party conflicts and inappropriate interference in councils and administration." Department of Cooperative Governance and Traditional Affairs (CoGTA). 2009. Local Government Turnaround Strategy.
- ¹⁰ A report on governance issues with respect to water boards has been commissioned by the DWA.
- ¹¹ Cabinet approved the comprehensive Local Government Turnaround Strategy on December 2, 2009.
- ¹² Global Economic Monitor, World Bank.
- ¹³ The first round of CSOs was carried out in 2006 covering 16 countries and is summarized in the report, 'Getting Africa on-track to Meet the MDGs on Water and Sanitation'.
- ¹⁴ JMP estimates are based on a linear regression of nationally representative household surveys.
- ¹⁵ It is difficult to reconcile the CSO2 water estimates with DWA estimates due to different assumptions and methodologies used. DWA unit cost estimates are approximately 50 percent higher than the CSO2 estimates.
- ¹⁶ It is difficult to reconcile the CSO2 sanitation estimates with DWA estimates due to different assumptions and methodologies used.
- ¹⁷ Due to rounding, component figures may not sum to totals.
- ¹⁸ The 1994 Community Water Supply and Sanitation Policy White Paper required that users pay for the operation and maintenance costs. Department of Water Affairs and Forestry. 1994. Water Supply and Sanitation Policy White Paper: Water, An Indivisible Asset.
- ¹⁹ The CSO2 scorecard methodology and conceptual framework are discussed in detail in the synthesis report.
- ²⁰ The Masibambane program is a "partnership between the department of local government (now CoGTA), the South African Local Government Association (SALGA), the European Union and its member states; the Swiss Government and Ireland Aid. The Masibambane Sector Wide Support Approach works from the premise of coordinated strategies and joint implementation involving all players in the water sector: national and provincial government, municipalities, civil society, donors, water utilities and the private sector." www.dwa.gov.za/masibambane/About.aspx
- ²¹ World Bank Atlas method.
- ²² Scorecard indicators relating to the institutional framework section are as follows: All subsectors: targets in national development plans/PRSP; subsector policy agreed and approved (gazetted as part of national policy or as standalone policy); RWS/UWS: institutional roles defined; RSH/USH: institutional lead appointed.

- ²³ The Community Survey of 2007 and the recent General Household Surveys show a shift in the distribution of service levels between communal supplies and yard connections and a slowing in the reduction of the service backlog (households without a piped supply with 200 meters).
- ²⁴ Scorecard indicators relating to section on financing and its implementation are as follows: All subsectors: programmatic Sector-Wide Approach; investment program based on MDG needs assessment; sufficient finance to meet MDG (and subsidy policy in the case of sanitation); percent of official donor commitments utilized; percent of domestic commitments utilized.
- ²⁵ The Public Financial Management Act 1 of 1999 and the Municipal Financial Management Act 56 of 2003.
- ²⁶ There are some technical issues related to the formula design which are currently being addressed.
- ²⁷ See note 20.
- ²⁸ See notes 15 and 16.
- ²⁹ Scorecard indicators relating to the M&E section are as follows: All subsectors: annual review setting new undertakings; subsector spend identifiable in budget (UWS: inc. recurrent subsidies); budget comprehensively covers domestic/donor finance; RWS, RSH, and USH: domestic/donor expenditure reported; UWS: audited accounts and balance sheets from utilities; RWS, RSH, and USH: periodic analysis of equity criteria by CSOs and government; UWS: pro-poor plans developed and implemented by utilities; RWS/UWS: nationally consolidated reporting of output; RSH/USH: monitoring of quantity and quality of uptake relative to promotion and subsidy efforts; all subsectors: Questions and choice options in household surveys consistent with MDG definitions.
- ³⁰ This definition of urban and rural is not strictly correct. For example, some metropolitan municipalities (most notably eThekweni) also contain rural areas within their boundaries, and small towns in South Africa are effectively urban. However, given the current reporting systems, this is the only practical way to distinguish between the urban and rural subsectors for the purposes of this report. Municipalities and the national household surveys do not report on urban and rural areas separately.
- ³¹ See note 29.
- ³² The CSO2 investment requirement estimates do not include the cost of hygiene promotion and other software activities, relative to the targets, due to the difficulty of estimating such costs on a per capita basis.

Notes

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