South Africa

WASH Sector Brief

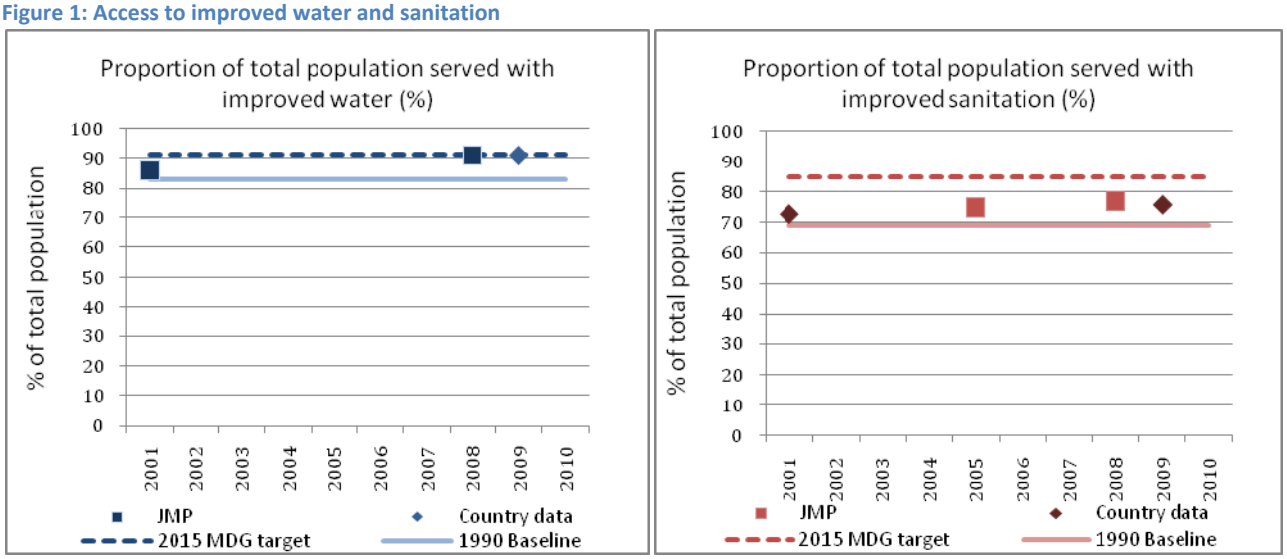
Headline issues

- South Africa has an ambitious program to address the infrastructure backlog from the apartheid era and inequities of the past. Universal coverage targets for water and sanitation services have been set, with an emphasis on subsidised programs for communities most disadvantaged under apartheid.
- Institutional arrangements for water and sanitation are among the best in Africa with clear policies, plans, lead institutions, coordination and monitoring systems. However there remain systemic challenges related to decentralisation of responsibility to municipal authorities and inadequate revenue collection to support ongoing service delivery.
- South Africa's strong progress is being undermined by an inability to sustain services, particularly an insufficient focus on maintenance and a lack of coordination of new bulk water supply projects with areas of high and growing demand. Many of the achievements of the 1990s have been let down by poor progress in the 2000s.
- The sanitation subsector is lagging behind water in all aspects of performance and needs greater attention.

Coverage and WASH related health statistics

Based on the goal to halve the percentage of people without access to improved water and sanitation in 1990, South Africa is on track to achieve the 2015 Millennium Development Goal (MDG) targets (see Figure 1). Using the country's own service definitions and baseline, South Africa has already exceeded the MDG goal with a sharp rate of progress between 1994 and 2010,[1] however it should be noted that these figures nominally refer to 'installed' capacity rather than an assessment of functional, operational systems and actual coverage is likely lower.[2] Data collected under the WHO/UNICEF Joint Monitoring Program (JMP) starts from a higher 1990 baseline and shows slower overall progress, meaning South Africa has not yet met the MDG targets according to this measurement system.

Figure 1: Access to improved water and sanitation



Source: WHO/UNICEF Joint Monitoring Program (JMP) (2010) data for 2008[3] and African Ministers' Council for Water (2008).[1] Note that the 1990 baseline for country data differs from the JMP baseline shown here due to different definitions.

The difference between government and JMP figures is explained by variations in the definition of an acceptable level of service. The Government of the Republic of South Africa (GoRSA) defines basic services

more stringently than JMP, water supply as a minimum quantity of 25 Litres per person piped water supply within 200m of a dwelling and not interrupted for more than 7 days in a year, and sanitation as a ventilated improved pit (VIP) latrine in each household. Using these standards, the government has set national targets of 100% coverage for both water and sanitation by 2008 and 2010 respectively,[4] later extended to 2014.[1]

Both urban and rural communities are predominantly supplied by piped water from bulk water storage infrastructure.[5] Urban water coverage in 2009 was estimated at 96% by the GoRSA or 99% by JMP, depending on differing definitions of service and 'urban area'.[1] However success in urban areas is likely overstated, as according to UN-HABITAT estimates in 2005, 29% of the South African urban population were living in slums,[6] and these communities are typically not reflected in official coverage estimates.

South Africa performs better than other Sub-Saharan countries in terms of both coverage and sustainability of water supply and sanitation infrastructure.[1] However significant efforts in operation and maintenance capacity are needed to maintain the level of coverage against rates of growth and aging infrastructure. The Department of Water Affairs (DWA) estimates that 24% of water and sanitation facilities are not functioning[7] and a 1999 study calculates that 50% of systems installed between 1994 and 1999 were no longer operational.[8] Government officials often cite vandalism of water meters as a cause for system failure,[8] but many small-scale systems are unsustainable due to inefficient cost recovery mechanisms (See Sector Governance section).[9] The South African Institute of Civil Engineers (SAICE) reports in 2011 that many of the country's 850 municipal wastewater treatment plants are in urgent need of repair.[5] These trends could erode the past decade's progress in service coverage.

The government has made good progress in improving sanitation access in rural and urban areas but by its own projections will not meet its 2014 universal coverage figures – mainly because of the very low baseline for rural areas (less than 50%) and the difficulty in providing sanitation facilities for households in informal urban settlements.[1] The government preferences flush toilets or waterborne sanitation when providing sanitation facilities in urban areas under the Free Basic Sanitation Campaign drafted in 2004 – this practice is criticised by AMCOW as inefficient, particularly in water scarce areas of the country, and incompatible with households' ability to pay.[1] VIPs are being provided in many households in rural areas but there are ongoing issues with the capacity of municipal governments to manage the emptying of pits. In 2005 the government subsidised ecosanitation programs in two areas (eThekwini and Northern Cape), resulting in more than 30,000 double vault urine diverting toilets.[10] It is encouraging that the government is beginning to include ecosanitation into its subsidised infrastructure program – although the low incidence of actual reuse of phosphorous[10] suggests that further education is required to achieve the best results from this program.

South Africa performs relatively well compared to other Southern African Development Community (SADC) countries for WASH-related health indicators, including infant mortality and the total proportion of WASH related deaths (see Table 1). However, the high total WASH deaths per year and total WASH DALYs (years), demonstrate a need for concern. Diarrhoeal disease and cholera outbreaks are a continuing threat to South African children.[11]

Table 1: Summary health statistics

Infant mortality (deaths per 1000 births)[12]	62
WASH-related DALYs (% of all DALYs)[13]	3%
Total WASH related DALYs (Years)[13]	659,564
Total WASH related deaths per year[14]	18,263
WASH related proportion of deaths (%)[14]	3%

Sources: World Bank and WHO as shown in endnotes

Finance trends

Acknowledging uncertainties in coverage estimates, current finance is significant to achieve MDGs but appears to be insufficient to reach either of the government's ambitious universal coverage targets by 2014.[1] The government has separate budget lines and targets for water and sanitation spending and aims to spend a minimum of 0.75% of GDP on water services infrastructure.[4] As a whole, expenditure in the sector is currently 1.2% of GDP, under the 2-3% benchmark for countries of a similar economic status.[7] Planned investments in water supply of $US1 billion per year are sufficient to cover the anticipated annual requirement of $US857M but will fall short of the higher costs expected for future rural water supply schemes.[1] Total annual sanitation investments of $US546M/year are significantly lower than the required $US1,218M/year – although these figures are based on achieving higher standards of sanitation access than required to achieve the MDGs.[1] AMCOW reports that South Africa's enhanced universal targets are unrealistic and should be revised to offer a better picture of required funding and performance to date.[1] The UN-Water Global Annual Assessment of Sanitation and Drinking-Water (GLAAS) supports this analysis. Survey respondents estimated the adequacy of funding as 'more than 75% of needs' for urban and rural water and sanitation subsectors – but this is based on MDG and not national targets.[15]

South Africa is the only middle-income country (MIC) in Sub Saharan Africa[7] and appears to have sufficient internal funds to meet investment requirements in WASH. Compared to other stable countries in the SADC region, the GoRSA provides the majority of funding for the WASH sector (only 1% of the sector is funded by donors compared to 70% in Malawi and 90% in Zimbabwe).[7] It is not possible to disaggregate finance trends by urban and rural infrastructure because budgeting and reporting is done at the municipality level, which typically includes both urban and rural areas.[1]

In most cases municipalities, or local government, are responsible for local infrastructure and ongoing costs. According to figures from the National Treasury, in 2002-3 42% of municipal infrastructure investments were financed by local government's own revenue,[16] although dependence on grants was normally higher in smaller municipalities. Municipalities receive budget support through national and provincial government grants and subsidies. Two key grants include the Municipal Infrastructure Grant (MIG) and the 'Equitable Share' – an unconditional operating grant for municipalities to provide basic services to poor households. The investment models developed in the 2007 National Water Sector Plan assume that 36% of the Equitable Share Grant is allocated by municipalities to the water services sector.[4]

The Draft Sanitation White Paper establishes guidelines for financing of urban and rural sanitation schemes; local authorities are required to finance urban sanitation schemes and the government only provides capital grant subsidies under extenuating circumstances e.g. where the local authority has to service a disproportionately large number of residents and cannot afford to meet minimum basic standards, or where investment is needed to alleviate a serious environmental problem.[17] In rural areas, subsidies for sanitation infrastructure are offered directly to individuals or projects designed by groups of individuals according to the guidelines in the White Paper.[17] The government also subsidises sanitation infrastructure in existing schools at the rate of $US4/student (in 1995 terms).[17]

Like all infrastructure sectors in South Africa, water supply and sanitation investment is characterised by a strong focus on capital expenditure in lieu of life-cycle costing models that incorporate ongoing operating and maintenance expenditure requirements.[5] A 2009-10 AMCOW report estimates total annual operating and maintenance costs for South Africa to be $US530M/ and $US493M/year for water and sanitation respectively.[1] These figures are much higher than the Department of Water Affairs' estimate that $US210M[18] annually is required to maintain current water supply infrastructure.[5] The share of the government's

Equitable Share grant that municipalities dedicate to ongoing costs for the WASH sector is 23.3% for water and 11.6% for sanitation.[19]

11% of municipal water is unbilled and a further 24% is lost through leakages, eroding the local governments' ability to finance ongoing maintenance of infrastructure and pay water suppliers – both of these figures are increasing, indicating a key area for action.[7] Many local governments have extended the government's free water for the poor policy to free basic water for all – providing an additional strain on operating budgets (see Sector governance section below).[7] In urban areas, a progressive block tariff is levied to ensure the long-term costs of supplying large-volume users are met. This block tariff also provides a cross subsidy to promote affordability for the poor and in rural areas where income from tariffs does not cover operating and maintenance costs.[2]

Sector governance

Since the full transition to democracy and end of apartheid in 1994, sector reform has been driven by political and social pressures to reduce the great inequities that exist across the country and achieve universal coverage of basic services as outlined in the Reconstruction and Development Framework (RDP).[1] Between 1994 and 2002 an additional 7 million people were provided services through the government's accelerated infrastructure programmes of work – the sector's institutional framework was developed simultaneously.[20] In this context, WASH reforms have further been guided by the introduction of the constitutional right to access to water in 1996, the 1997 Water Services Act, which focuses on increased cost recovery and the 2001 policy for free basic water (FBW).

The 2001 policy is operationalised through a tariff structure that affords 6,000L of free water a month to a family of five (based on 40L/person/day), the costs of which are to be covered by cross-subsidisation within the municipal area, with support from national subsidy arrangements including the Equitable Grant. In many cases, local governments have extended this privilege to all their constituents rather than implementing the policy on a means tested basis and the Department of Water Affairs reports that 66% of recipient households can afford to pay,[21] however this approach simplifies the administration and higher users pay more on a rising block tariff arrangement.[2] The downside of this arrangement has been reduced municipal revenue collection causing a resultant loss in service quality and system functionality.[22] In 2011 the program served 13 million households or 86%, and almost 6 million of these are classified as poor households, accounting for almost 86.5% of poor households.[21] Economists have commended this program as a success – providing close to universal free water without causing undue strain on local government finances,[23] however concerns over on-going functionality and sustainability of municipal operators remain.

These reforms have occurred in the context of decentralisation, guided by the constitution, and more recently in the context of a shift to a sector-wide approach (SWAp). In 2003 all service delivery responsibilities were decentralised to local government.[1] In this context the government sets national targets and provides budgetary support to local government, but cannot control decisions on how money is allocated.[1] Discretionary spending of the non-conditional Equitable Share grant means funding assumed under the National Plan to be allocated to the WASH sector can often be funnelled into other municipal priorities such as housing.[1]

In 2001 the government launched Masibambane[24] – a SWAp for the water sector led by the DWA. The Masibambane programme is premised on providing sector support and promoting collaboration on 'soft' issues that are often neglected for infrastructure including governance (policies, strategies etc.), gender mainstreaming, civil society engagement and sustainability of delivery.[25] The SWAp gradually expanded from a pilot to encompass the whole country and also water resource management and in 2011 was nearing the end of Phase 3.[26]

Privatisation of the water sector commenced in the mid-1990s following the 1994 White Paper on Water and Sanitation Policy and the 1997 Water Services Act, however progress has slowed in the last decade.[27] There is controversy with regard to the private sector's approach to cut water supply or restrict flow for people who do not pay their bills once consumption passes the free monthly limit and also with regard to the installation of pre-paid meters, which affect the poorest. Previously consumers could settle accounts with the municipality by arrangement, under the pre-paid system it was more likely that they would go without water or use unsafe sources.[28]

Subsector governance

The South African local government system makes it difficult to clearly differentiate between rural and urban areas. This report follows the distinction used in the 2010 AMCOW paper and classifies municipalities that predominantly service cities and large towns as urban and those that serve smaller towns and rural areas as rural.[1]

The Strategic Framework for Water Services (2003-2013) provides an institutional vision, goals and targets for the sector and clarifies the roles of all actors and the executive authority of local government authorities for water and sanitation services.[26] The DWA regulates local government activities in the water services sector and collaborates with the Department of Cooperative Governance and Traditional Affairs (COGTA) who has ultimate oversight of local government.[1]

Urban water

The Department of Water Affairs (DWA) is the lead actor overseeing water supply at the national level, including regulating other actors, devising policies, managing bulk infrastructure and acting as a custodian of the country's water resources.[1,5] The South African Institution of Civil Engineering awarded the DWA a 'D' (on a scale of A-E)[29] in its 2011 Infrastructure Report Card.[5] This poor mark is attributed to the persistent deterioration of aging bulk water infrastructure caused by insufficient investment in maintenance and capital renewal and the threat of accelerated sedimentation of dams and storage infrastructure.[5] The DWA is also responsible for managing the country's bulk water supplies, which are facing serious salination and eutrophication problems.[5]

Prior to 1997, Water Boards (an entity between municipal and national government) were the only legal entity allowed to provide bulk water. The Water Services Act 1997 reformed the governance of water provision in line with the country's decentralisation policy. The local government or municipality is now the water services authority (WSA) and the local regulator of water services. It determines local policies and standards in line with minimum national norms, promulgates by-laws, plans the provision of water services (water services development plan), determines how investments in water services are undertaken and sets tariffs and is also a self-regulator of its water services provision activities. [30] The WSA or local government can contract water provision to other entities (e.g. Water Board or private company).[30] In practice there is a serious lack of capacity at the local level to perform these functions.[5] South Africa is suffering a severe skills shortage in terms of civil engineers – a 2007 survey showed that in 283 municipalities, 83 had no civil engineers on the payroll and 48 employed only one civil technician.[5] Water Boards are typically better financed and have higher capacity than municipalities and consequently their infrastructure is in better condition.[5]

In addition to coverage targets, the government successfully implemented a certification scheme to monitor drinking water quality.[5] The Blue Drop Certification regulates municipal water supply services against criteria that afford the highest possible standards of drinking water.[31] Blue Drop and the sanitation subsector

equivalent, Green Drop, reports are released publically and both programs have been heralded as successful models of quality regulation.[5] 37% of municipalities had attained Blue Drop status in 2011.[5]

Urban sanitation

The lead national agency for sanitation and wastewater facilities nationally is the DWA, although overall responsibility for sanitation has recently been allocated to the Department of Human Settlements and it remains to be seen how roles will be divided.[1] As for the water subsector, local governments are the responsible authority for sanitation governance at the local level and services can be provided by local government directly or contracted to other bodies (e.g. Water Boards or private company).[5,26] Sanitation access outcomes are included in the municipalities' Water Services Development Plans, as part of their broader Integrated Development Plans.

Although progress has been slow in achieving sanitation coverage, institutional arrangements for the subsector are considered among the best in Africa and the SADC.[1] South Africa has a national policy (Free Basic Sanitation Policy), a national plan to meet and surpass MDG targets, one principal institution leading the sector and a coordinating body engaging all stakeholders (the Sanitation Task Team).[11,32,33] The government identifies the sector's challenges as threefold – the provision of basic infrastructure to households, subsidising operating and maintenance costs for the poor and hygiene promotion.[26] The main sources of funding available for local governments to achieve universal coverage are the Equitable Share subsidy, infrastructure grants and the municipalities' own revenue,[33] although less than 0.5% of GDP is allocated to sanitation.[32] The DWA also applies its Green Drop certification to the management of municipal wastewater systems to ensure operations are conducted with minimum adverse environmental impacts.[31]

Despite the renewed focus on provision of basic sanitation access, South Africa continues to lag significantly in this area. Outside of major cities, South Africa's sanitation infrastructure receives an 'E'[29] in the 2011 SAICE infrastructure report card, the worst possible grade, indicating that infrastructure is not fit for purpose and exposes the public to significant health and safety risks.[5] There has been deterioration in performance since the last report card was published in 2005 and the sector suffers a shortage of skilled personnel for maintenance and operation of wastewater treatment plants.[5]

A 2011 AusAID analysis identifies the provinces of KwaZulu-Natal (KZN), Limpopo and the Eastern Cape as the areas with the greatest backlogs in urban sanitation and some of the largest capacity constraints at the municipal level.[7]

Rural water

Water supply in rural areas is managed under the same governance structure as in urban areas – the main difference being that rural municipalities are often less populous spread over larger areas and less equipped to perform these functions. Operations and maintenance costs of rural water supply systems are mostly covered by local revenue, and for smaller and remote municipalities, financing is insufficient to ensure water security.[34] 63% of small to medium-sized municipalities do not comply with drinking water quality standards – an outcome of a severe shortage of qualified water managers.[35] Likewise smaller municipalities operate with a low financial base and have little capacity to mobilise funds through a block tariff, since there are few industries, wealthy or large scale users to subsidise the water costs to the poor.[36] The increasing rate of unemployment and urbanisation will exacerbate financing pressures resulting in a higher proportion of low-income customers in the Eastern Cape,[37] and there will be increased need for the central government to provide support, including the Equitable Share subsidy.

Rural sanitation

As for urban areas, rural sanitation and wastewater treatment is managed at the municipality level by local governments, under the national oversight of the DWA. The local government framework does not encourage dedicated spending on rural sanitation facilities, nor its proper reporting.[1] Responsibility for emptying rural latrines is not clearly identified[1] and Water Service Providers in rural areas often lack the capacity to empty VIP toilets. In these cases subsidies are meant to extend to poor households who arrange for the emptying of their own toilets.[26]

Health and hygiene

The link between WASH and health issues is well understood in South Africa but has not been sufficiently translated into actual handwashing practice. Thabo Mbeki introduced the Free Basic Water Policy in 2001 in response to a national cholera outbreak the year before[20] and the government recognises the importance of national hygiene campaigns through targets in its White Paper on Basic Sanitation.[38] The Strategic Framework for Water Services includes a target that 70% of households with access to at least a basic sanitation facility know how to practice safe sanitation by 2005 (and 100% by 2010).[26] The 2011 SAICE report notes that most sanitation facilities do not have handwashing facilities and the lack of a consistent communication campaign.[5] The Department of Health is responsible for coordinating interventions aimed at influencing health and hygiene behaviour in communities, developing standards related to sanitation and water supply and working with the Department of Education to develop curricula to bring sanitation and hygiene messages into the classroom.

Some studies link the 2000 cholera epidemic to the Government's policy of full cost recovery for water and the resulting decline in the poor's access to water of sufficient quality and quantity.[39] The Equitable Share policy was partly a response to this serious health impact that arose from insufficient access to free basic water services.[2]

Climate change and water resources

The Department of Water Affairs (DWA) is responsible for regulating and monitoring the use of water schemes[5] including every major river.[40] At the local level, water resources are managed by 19 catchment-based Water User Associations, as provided under the National Water Act (1998).[40] WUA membership comprises all water users in the area, and some areas are in the process of absorbing old irrigation boards and other existing water user groups into their WUA.[40] WUAs focus on efficient use of water in their local areas and safeguarding water supplies against pollution.[40]

The Southern African region is dominated by shared water resources.[7] Eleven of the 19 WUA areas share international rivers.[41] South Africa shares its major water sources with neighbouring countries including Botswana, Zimbabwe, Mozambique (Limpopo River) and Namibia (Orange River) and is a signatory of the SADC Shared Water Course System Protocol and Revised Protocol.[40] A declining supply and quality of water resources is a key boundary to growth for South Africa[40] and the country is now looking to import water from its neighbours under the 30-year Lesotho Highlands Water Project.[40]

Table 2 summarises the status of South Africa with respect to climate and water resource indicators. With only 1ML/person/year, South Africa is a water-scarce country, subject to periodic droughts[5,7] and ranks worse compared with other African countries in terms of available renewable freshwater. Lack of progress in wastewater treatment poses a threat to the few freshwater resources that are available.[40] The government has also identified the health sector and water resources as two areas among those facing the highest risk of impact from climate change in South Africa.[40] Current climate modelling scenarios suggest that there will be significant climate change impacts in South Africa, even given a business as usual global emissions scenario.[2]

A reduction in the amount or reliability of rainwater would exacerbate serious shortages in ground and surface water.[42] Despite the relative scarcity of water, particularly in dry areas close to urban centres and predominantly poor regions, insufficient emphasis has been given to water efficiency programmes[5] and this is a key area where water scarce donors such as Australia could provide support.

Table 2: Summary status of water resources and vulnerability

Renewable water (ML/population)[43]	1
Overall Climate Vulnerability factor 2010[44] (on scale of *Acute, Severe, High, Moderate, Low)*	Moderate
Overall Climate Vulnerability Factor 2030[44] (on scale of *Acute, Severe, High, Moderate, Low)*	Severe
Environmental Vulnerability Status[45] (On scale of *Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient)*	Highly Vulnerable

Donor environment

Being a middle-income country, South Africa is less reliant than neighbouring countries on donor funding and the Government of South Africa is the primary driver in the sector.[40] The European Commission suggests that donors can best add value to the sector by providing best practice, skills and knowledge that will underpin innovative ways to address the country's WASH challenges.[40] Another key area of need is building local government capacity in financing[7] and operating and maintenance of infrastructure.[5]

The majority of recent funding has been channelled through the 10-year basket Masibambane programme, which ends in 2011.[7] Donors to this programme include the EU, Swiss Government and Irish Aid.[25] The EU's Country Strategy Paper also includes water and sanitation activities under its objective to provide basic services to the poor.[40] No other large donor-funded projects were identified in this study – and it appears that bilateral support for the WASH sector will all but disappear at the completion of the latest Masibambane phase.[7] A consequence of low donor presence in South Africa is that NGOs such as local water sector stalwart, Mvula Trust, are now almost totally dependent on government contracts.[1]

Sector monitoring

Information systems in the South African WASH sector are strong, particularly when compared with other SADC countries. There is a well-developed monitoring and evaluation framework that measures performance against national targets and policies for overall spending, equity of subsidy allocations and sector outputs e.g. water quality and wastewater discharge and coverage.[1] Information systems include regular household surveys that investigate quantity and quality aspects of service delivery.[1] The Masibambane SWAp programme has implemented a single water services reporting format with the intention of streamlining accountability processes.[25] However, concerns regarding the reliability and usefulness of sector data have been noted, with the Masimbambane III program evaluation citing issues with the quality of primary data and processes for analysis so that data can inform decision making.[46]

Reporting at the municipality level may obscure specific urban/rural trends because local government areas often incorporate both towns and traditional rural communities.[1] Onerous levels of required detail and different and overlapping requirements between national departments also hamper municipal reporting.[1] These factors contribute to low compliance in local level water sector reporting.[1]

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Contact: Juliet.Willetts@uts.edu.au; Naomi.Carrard@uts.edu.au; Kumi.Abeysuriya@uts.edu.au

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[43] Renewable Freshwater Supply estimates (km^3/yr) (2006) from Pacific Institute (www.worldwater.org), converted to *ML per head of population* using JMP population estimates. Data should be used with caution and treated as 'order of magnitude'. Freshwater estimates (2006 updates) were made at different periods from different sources. 2008 JMP population data used for consistency with other calculations.
[44] Source: Climate Vulnerability Monitor 2010 http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2010 **.** Countries are classified according to**:** *ACUTE+***,** *ACUTE***,** *ACUTE-***,** *SEVERE+***,** *SEVERE, SEVERE-, HIGH+, HIGH, HIGH-, MODERATE, LOW.* For information on included datasets and methodology for aggregation and categorising, see http://daraint.org/wp-content/uploads/2010/12/CVM_Methodology.pdf.
[45] Source: Environmental Vulnerability Index 2004 developed by SOPAC, UNEP and partners http://www.vulnerabilityindex.net/. Countries are classified according to: *Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient.*
[46] Department of Water Affairs, Republic of South Africa (2011) Final Evaluation of the Masibambane III Programme FY 2007/2008 – FY 2010/11, July 2011.