The Experience of Private Investment in the South African Water Sector: The Mbombela Concession

Sugen Chetty and John M. Luiz

ERSA working paper 429

April 2014

Economic Research Southern Africa (ERSA) is a research programme funded by the National Treasury of South Africa.

The Experience of Private Investment in the South African Water Sector: The Mbombela Concession

Sugen Chetty* and John Luiz†

April 29, 2014

Abstract

South Africa is a water-stressed country that over a protracted period has suffered from poor water service delivery. The major problems are inefficient operations, lack of capacity in spending allocated budgets, unclear management structures, and a long term decline in capital expenditure. Economists have long argued that private investment will bring good fiscal control and efficient structures and improve service delivery. However, there may be trade-offs between this improved economic efficiency and the necessity to pursue more egalitarian social outcomes. The purpose of this research is to explore the experience of private sector investment on operational efficiencies and social objectives in the South African water sector in the Mbombela concession. The study concludes that in this case private investment has enhanced service delivery by improving efficiency, technical skills and the capacity to spend allocated budgets without any significant negative impacts on equitable water distribution.

Keywords: Water; South Africa; privatisation; social and economic trade-offs

JEL codes: H41, H54, H83, L95

1 Introduction

With a producer price parity gross national income per capita of $10,960 in 2011, an established democracy and the most developed infrastructure on the continent, South Africa is the clear financial and industrial leader in Africa. Geographically South Africa has an area of 1.2 million km^2 with rainfall of 450 mm/yr that is half the world average of 860 mm/yr and is, therefore, classified as semi-arid. The country still bears the consequences of apartheid which resulted in uneven access to basic services and water is no different. South Africa currently has a massive infrastructure plan in place, partly to address these

*Wits Business School

†Graduate School of Business, University of Cape Town

disparities, and an estimated $320 billion worth of large-scale projects are at present under consideration or in progress. Of this total, about a quarter are being financed and implemented, and the remaining three-quarters are under assessment. However in the water sector there are issues of poor governance and a lack of capacity in terms of technical and management skills that will constrain infrastructure development. The National Planning Commission (2012: 178) states it as follows: 'There are serious concerns about the ability of the current water administration to cope with emerging challenges. The available pool of experienced water engineers and scientists is shrinking rapidly. Administrative failures and the absence of enforcement indicate that management quality is deteriorating and institutional memory is being eroded.'

Private business can potentially improve service delivery. From a public sector point of view, the private sector can contribute valuable technical and managerial skills and enhance operational efficiencies, whilst the private sector has the opportunity to earn annuity income with the right investments in this sector. However, the social aspects of water cannot be escaped especially in a country like South Africa with huge inequalities in terms of access to basic needs. The purpose of this research is to explore the experience of private sector investment on operational efficiencies and social objectives in the South African water sector on the basis of the understanding at the Sembcorp Silulumanzi concession in Mbombela. The research focuses on the experience of the concessionaire and this is an obvious limitation. Nonetheless, very little work has been done from this perspective and thus this research contributes to a broader discussion on public private partnerships in the water arena. The paper is structured as follows. Section 2 provides a literature review which focuses on the nature of water as a public good but which allows for private provision and the international experience of private investment in the water sector. Thereafter, it examines the nature of the water sector in South Africa and the challenges it faces. Section 3 outlines the research methodology, which is followed by the results and the discussion. Section 5 concludes.

2 Literature Review

2.1 Theory of private provision of a public good

Public goods are characterised by non-rivalry and non-excludability. Raw water found in rivers and lakes is an impure public good since it satisfies the two criteria to some extent. It is present in large supply and it is difficult to exclude its use. Potable water is collected raw water, from rivers, lakes and rain-runoff than has been purified for consumption and fed into homes via a reticulation system. Potable water in this scenario is not a pure public good since it can be excluded and individuals can affect another's right to consume it (any open tap affects the line pressure and therefore distribution). Potable water has been characterised by public supply with some tendency towards private provision since the early 1990's.

For private goods, optimal provision occurs when the marginal cost equals the marginal benefit to the consumer, whereas for public goods the optimal provision is the point where the sum of all marginal benefits across all recipients equals the marginal cost. The result of this is that the private sector may under-provide goods with public characteristics because of the free-rider problem. Government may determine optimal provision and either provide it or mandate the private sector to provide it. Detractors of the private provision of water argue that the nature of the commodity makes the application of the pricing theory imprecise. Narsiah (2008: 24) cites studies which highlight the complexities of costing with regard to water and illustrates that it can only be viewed as approximations because 'long-term marginal costing is "always arbitrary and indemonstrable" and the "lumpy" nature of fixed investment makes it extremely unreliable. Moreover, the costing of water presents added difficulties, for example the "quantification of the true value and costs of water, including the environmental value"... . Full cost recovery in the water sector is based upon insecure foundations and may be linked to rent seeking.' Critics also point to the 'contradiction between water as a commodity and as a basic need'. Ahlers (2010: 227) states that because 'water "scapes" are historically dynamic and spatially differentiated, there are no quick fixes to water resource management. Commodified water is an abstract removed from its spatial and social-historic context.' On the other side of the debate are those who argue that the public provision of water has seen the resource mismanaged and wasted. They highlight that the public provision of the public good faces three problems: crowding out private provision, funding public projects, and reflecting the public's demand of a public good (Gruber, 2007). These contrasting views and the important nature of water and its contestation has seen the blurring of the distinction between public and private goods over the past several decades and increasingly we have seen the introduction of hybrid systems such as private-public partnerships entering domains traditionally reserved for the public sector. Water is no exception and the result has been a dramatic increase in private investment in water programmes in both developed and developing countries.

McGahan, Klein, Mahoney and Pitelis (2009) argue that the benefit of public-private interactions is their capacity to innovate in the public interest, particularly where policy is implemented without the lowest cost leaving a gap for entrepreneurship to create value. The authors further state that the growth of privatisation for the public interest is dependent on the resolution of public concerns, the development of public sector institutions and the potential better performance of a private company over the public sector in satisfying public interest. De Gouvello and Scott (2012: 88) illustrate the changing nature of the public-private debate within water governance which increasingly reflects a paradigm pendulum. They show that the 1990s constituted a turning point in water management globally which saw its commoditization and internationalization. Water was seen as an economic good and only the market mechanism could ensure its efficient allocation and governance. Organizations like the World Bank became advocates for private sector intervention. De Gouvello and Scott (2012: 89) do, however, ask whether water privatization has actually peaked and see a

gradual reconsideration about the future of public governance of water: 'Public authority in general is being reasserted over service provision, while resource development and investments in infrastructure continue as a mix of public and private initiatives. But more important, increased oversight and regulation of market-based initiatives that until recently were touted as panaceas for water supply and sanitation are increasingly being considered on the basis of social equity, environmental, and public health concerns.' We are therefore likely to see further developments in the water sector with newer hybrids of public-private partnerships which, unlike some previous iterations, will not only be concerned with economic efficiencies but also with social justice.

2.2 International experience of private investment in water

Internationally, the number of privately invested water and sewerage projects nearing financial closure increased from 2 in 1987 to 183 in 2000. By 2010, the number had grown to 1,057 for water supply and sanitation (IEG World Bank, 2010). Most of the projects are on an urban area concession basis in which a private company has exclusive rights to operate the water supply for a fixed period (normally 25-30 years) (Marin, 2009). The privatization of water has affected every continent but there are unique features and experiences which reflect each local context and this has impacted its effectiveness (see Ahlers, 2010; Gialis, Loukas and Laspidou, 2011; Hailu and Osorio, 2012). In developing countries where issues of access to basic water services are not universal and high levels of inequality persist, the privatization of water has been particularly contested and it has raised the issue of potential trade-offs between economic efficiency and social gains.

The Latin American case provides useful insights for South Africa because of the similarity in the social and political economy arena - middle income regions with high levels of inequality and skewed access to basic services. In Latin America there has been a history of mainly 30-year concessions from as early as 1990 in Argentina, Brazil, Bolivia, Chile, Columbia, Honduras, Mexico, Trinidad and Tobago. In terms of water utility privatisation Estache, Gomez-Lobo and Leipziger (2001:1179) call Latin America 'a laboratory of privatisation'. Of the 16 published case studies summarised in Clarke, Kosec and Wallsten (2009), 12 are given a positive assessment. PPP's in Columbia, Brazil, Argentina and Manila have performed well in urban areas by expanding access to piped water supply (Marin, 2009). Privately run management contracts in Guyana, Trinidad and Tobago have helped to improve collection rates in urban areas. Concessions with targeted public grants in Colombia and Guayaquil have achieved remarkable success and have improved service delivery to the poor (Marin, 2009). However, mixed performance has been reported in the remaining cases in terms of service delivery to the poor (Clarke et al., 2009; Wilder and Lankao, 2006). In Argentina, the privatization of the Buenos Aires water company increased efficiency, productivity and investments and saw more than two million people gain access to the water service which resulted in dramatic improvements in

water-borne diseases. But access to water amongst the poorest neighbourhoods remains a problem and water privatization has not been politically popular and resulted in the renationalization of the company in 2006. Hailu, Osorio and Tsukada (2012: 2564) compare the experience of cities in Bolivia where water was privatised with those that were not and find that access to water by low income households increased under private provision but the tariff increases required for full cost recovery resulted in public outrage and forced the government to renationalise the company.

Africa, too, is characterised by the mixed performance of private investment. The balance of improving service delivery, by improving efficiency without compromising the right of the poor to water, has not been realised. African case studies summarised in Clarke et al. (2009) describe three positive case studies, two that were mixed and one that was negative in the period up to 2000. Further mixed performance of PPP's in Africa is highlighted by Marin (2009) who reviewed urban water utilities in developing countries. He gives PPP's in Ivory Coast, Morocco and Senegal a positive report card but notes negative outcomes in Maputo, Mali, Chad, Dar Es Salaam, Uganda and Jordan. In the Ivory Coast piped water supply in terms of total connections virtually doubled in a decade of private operation (Marin, 2009). Morocco has had four large cities supplied with water through private investment and has performed well in terms of quantity and quality of potable water (Tortajada, 2003). Water losses in Morocco were reduced under private concessions at a faster rate than public municipalities (Marin, 2009). Marin (2009) reports an improvement in collection rates in management contracts in Zambia and Johannesburg. Clarke, Menard and Zuluaga (2002) report positive results of privatisation in Guinea: a significant improvement in water services and quality, and a modest improvement in coverage. They also note that high income users were more likely to have access to the piped system due to high connection costs. In this case, the balance between improving service delivery without compromising the needs of the poor had not been met. Marin (2009) identifies the cancellation of concessions in Mali, Chad, Tanzania, Uganda and Jordan and a reversion to public management. He further observes that 50% of all water PPP's cancelled were in Africa. Based on case studies in Ghana, Tanzania, Zambia and Namibia, Loftus (2009) comments that water privatisation in SADC seems to be unsuitable since private investors have been unwilling to take on long-term risk.

2.3 South African Water Sector

Undoing the historical inequalities of access to water has been a challenge but there has been success. In 1994 only 59% of South Africans had access to clean and safe drinking water. By 2012 this figure was up to a national average of 94.7% – an increase of 35.7%. The backlog now stands at 5.3%, or some 710,000 households compared to 3.9 million households in 1994. However, there are still many rural communities in particular which do not have access to clean drinking water and thus there is no room for complacency (DWAF, 2012).

A growing concern has been delivery problems in the water sector. 63% of

municipalities could not prove that they achieved the water quality standard of SANS 241 in 2005 (DBSA, 2006) and Newmarch (2010) points out that less than 43% of municipalities monitored water quality in 2005. Some of these problems are a result of structural issues and the business models. Much of the function of water supply and infrastructure maintenance lies with the municipality. Having the municipality responsible for the infrastructure and water supply to users, given the skills and capacity needed to execute this function, is challenging. In addition, the municipality relies on upstream structures including Department of Water Affairs and Forestry (DWAF) and water boards for raw water and information (Molobela and Sinha, 2011). There is also an increasing tendency to decentralise government functions which can place further strain on the municipality. Furthermore, research done by Municipal IQ revealed serious problems with regard to municipal finance and intergovernmental fiscal issues. Of the municipalities included in the study, only two Johannesburg and eThekwini – achieved an 'excellent' score and two – Cape Town and Ekurhuleni – obtained a 'fair' score, while 12 including all the districts and local municipalities studied, achieved a 'poor' score. It states that a lack of clarity about the powers and functions of local government exacerbates the financial problems faced by municipalities and is a critical factor impeding progress in service. This has led to municipalities being saddled with a burden of 'unfunded mandates' in areas including water treatment. It concludes that attention therefore needs to be given to redefining the powers and functions of local government in areas such as water (NPC, 2012).

With the high treatment and transport costs of water (dams, water treatment plants, pump stations, long runs of underground piping that require maintenance), capital expenditure is crucial. In terms of public sector investment in water infrastructure capital investment declined over the last two decades of apartheid (DBSA, 2012; Newmarch, 2010). The rapid fall in DWAF capital expenditure during the Apartheid era from around $24 million in 1982/3 to less than $5 million in 1992/3 (in 1982/3 Rands) highlights the aging infrastructure problems (De Villiers et al., 1996). The introduction of GEAR in 1996 placed fiscal constraints on all levels of government which put further pressure on capital spending. More recently, when government did make funds available via municipal infrastructure grants (MIG), there were issues with capacity. Overall municipalities were spending only spending 75% of municipal grants in 2009/10 down 10% from 2008/9 (Ensor, 2010). There was also disparity between urban (metro municipality) and peri-urban (district municipalities) in terms of capacity to spend allocated capital budgets. Rural or peri-urban have lower economies of scale and this provides greater challenges in infrastructure delivery and cost recovery.

The challenges facing the water sector throughout its value chain is demonstrated in Figure 1 and it indicates the key stakeholders responsible for addressing them. Table 1 presents ten key challenges in the water sector. What these challenges all have in common is the need for strong institutional capacity to effectively diagnose and address them. At municipal level there is no standard one-sized model which is relevant in all circumstances and rather these

challenges require innovative and flexible options to be put on the table. The National Development Plan (NPC, 2012: 182) states that at municipal level, 'it is important to balance the political autonomy and exclusive service-delivery mandate granted by the Constitution with the realities of limited financial and human-resources capacity. A flexible institutional model should allow continued political oversight of local service provision by municipalities, while taking advantage of other delivery models'. In the following section, we outline our research methodology which addresses a particular case of such an alternative model.

The purpose of this paper is not to review the changing discourse around water delivery and privatization in South Africa although it clearly forms the backdrop to our study. Narsiah (2008) traces the origins of privatization in South Africa and how it filtered through into water services delivery. Likewise, Nyela (2008) explores the impact of South Africa's overall macroeconomic development policy and how it has affected water delivery and the challenges of meeting the triple objectives of efficiency, equity and sustainability. A common theme amongst both these papers is that water service delivery cannot be seen in isolation and forms part of broader changes to the economic policy landscape and the political contestation between competing ideologies. In fact Buhl-Nielsen (2001: 194) goes as far as to state that where 'political interests are more powerful than individual interests, it may be rational to temporarily sacrifice a water system in order to enhance political control.' There is therefore always a political undercurrent to the debate around the appropriate models for water delivery. This theme re-emerges in our discussion of the case below.

3 Research Methodology

We adopt a qualitative method to allow for a richer exploration of cause and effect in a highly complex political economy. The method allowed the development of a deep understanding of key themes using face-to-face interviews. The interview form, using a semi-structured discussion guide, was chosen because it provided the best opportunity to explore individual perspectives and experiences in a flexible but focussed manner.

The Mbombela municipality, with the landmark 30 year concession agreement with Biwater, was chosen for the study. Initially, only respondents from the municipality were targeted: employees at management or engineer level in the water sector exposed to private sector investment. However it turned out that the concessionaire had taken over some of the municipal employees working there prior to the agreement; and the remaining municipal employees retained control over the area not covered by the concession and also monitored the work performed by the concession. It thus made sense to draw respondents from across the operating landscape to reflect the experiences and opinions of both parties more fully. Twelve in-depth interviews were conducted ranging from an hour to three hours. Three respondents were directors, a further six were at managerial level, one was a city councillor, another a community liai-

son officer, and lastly an independent engineer who had consulted both prior to and during the concession. A dual recording system was used: each interview was videotaped and manual notes were taken using the research instrument. Although this raised issues of a lack of anonymity, the subject matter was not of a personal nature. The written notes were typed up after transcription of key points of the interview. The raw qualitative data was then analysed and interpreted, and coded around cluster key issues and themes.

Codes were pre-populated with factors from the literature survey as a form of checklist for the researchers. However no prompting per factor was attempted until the respondents made their initial inputs. The interview was steered towards the research themes in the following sequence:

- The changes after the introduction of private investment. Individual aspects were probed including efficiency, capital investment, management structure, capacity to spend allocated budgets, and overall service delivery.
- The effect of private investment on social goals with an emphasis on service delivery to the rural poor and service cut-offs.

Validity and reliability was assured in the research as follows. Respondents were not informed of any potential conclusions and interviewer neutrality was maintained. Member checking, where the respondent checked the short interview record, was performed on the first interview to ensure that the interviewer was recording results properly. Minimal variation was found and, thereafter, no further member checking needed to be performed. In addition, an audit trail was maintained with the recording of the interviews. To maximise dependability the following steps were taken: a) multiple questions were asked on the same topic to form a respondent view, and b) trial respondents were tested to prove the method and allow for inconsistencies due to methodology. Data triangulation to validate the data and research is provided by cross-referencing the responses with alternative data sources including official reports from the local municipality (Mbombela, 2012), various reports from the Department of Water Affairs (DWAF, 2012), and official evaluations undertaken by the National Treasury and the World Bank (Bender and Gibson, 2010). Furthermore, the researchers not only relied on the interviews but conducted site visits and collected data through these observations. Lastly, the respondents included a mix of views ranging from employees of the concession, to a local councillor, municipal managers involved in monitoring the concession, and a community liaison officer.

4 Results and Discussion

Prior to 1999, the municipality was in charge of the concession area under the DWAF. Competitive bidding was used to arrive at a concessionaire. Sembcorp Silulumanzi won the bid. The original mandated area was the Nelspruit town

council in the municipality but after a new demarcation the concession inherited a bid area outside of Nelspruit that formed part of the previous Kangwane self-governing territory. The number of households to be serviced thus grew and the population served by the concession in the eight areas is about 400,000 and represents about 74,000 households. The increased responsibility placed pressure on the concession to meet the new demand for water services. The concession is now in its third term with each term lasting five years.

The mix of respondents included employees of the private company at senior management level, seconded municipal employees, a councillor, municipal managers involved in monitoring the concession, a community liaison officer, and a municipal employee outside of the concession area.

4.1 Economic impact of concession

Table 2 provides a summary of the position of the respondents from Mbombela municipality and the concession company Sembcorp Silulumanzi. Respondents commented on how each factor changed after private investment. The factors are based upon the contractual requirements in the agreement between the concessionaire and the municipality.

The analysis of the responses from Table 2 is discussed further below.

4.1.1 Change of overall service delivery

All the respondents felt that water service delivery had improved once the concession was in place in the Mbombela area. Bender and Gibson (2010) find confirmation of these responses in their evaluation of the concession. They highlighted various indicators of service delivery improvement that were captured by key performance indicators (KPIs) and targets being met and the fact that the concession scope had been increased and further increases were foreseen. The Concession Monitoring Unit (CMU) monitors the contract between the municipality and Sembcorp Silulumanzi (the concession) using KPIs and targets. The KPIs were reviewed every five years with the municipality. Concession respondents mentioned that they preferred being checked against their KPIs frequently to help them to be more efficient.

There is evidence that the quality of the water supply has improved. The concession had obtained blue and green drop status, which is a measure of water quality. In a South African context, blue and green drop status is not common and only 43% of local municipalities are compliant in water quality (Nzimakwe, 2009). In the 2012 Blue Drop Report by the Department of Water Affairs, the Mbombela municipality was rated as the third best in the province and saw the biggest improvement over the 2010 score amongst the top three water services authorities. The city of Nelspruit, which falls under the concession, scored the single highest score for 2012. Respondents commented that service reliability in the rural areas had improved. They said that although there were still areas of intermittent water access, there were now more areas with 24-hour access.

Ten of the 12 respondents felt that efficiency had improved by having a concession in place. Key elements of the improvement were faster decision making, fault resolution, and project execution. This was confirmed by on-site visits. The decision-making process in the concession was helping project development by freeing up bottle-necks in the reticulation system. An example was given by an ex-municipal respondent who noted that a small technical repair, that is given the go-ahead in a short thirty minute meeting of the concession, would have taken over a week when governed by municipal approval processes. The concession had benchmarks for fault response. For large pipe bursts a three-hour reaction time was required and for a minor leak a response time of 12 to 24 hours. Using the call centre and job logging, performance was monitored.

Verification of these improvements reported above can be seen from the fact that in 1999 it was estimated that about 44% of all households and almost 80% of informal households in the area did not have access to a water supply service and this was the single most important service delivery issue and reason for entering into a concession. Bender and Gibson (2010: 22) report that the percentage of households without a basic water supply has improved, decreasing from 44% of total households in 1999 to 12% of total households in 2009. Table 3 provides a comparison of the concessionaire's performance with national averages for providing water services at or above the basic level of service. It shows that the concession has managed to increase the service to the rural areas from a very low base to bring it in line with national averages. The growth in the population serviced at or above the basic level of service has been sharply better at the concession (171%) than the national average (55%) and this has been achieved in an area that has experienced considerably higher population growth than the average for the country.

4.1.2 Budget management and capital spending due to the concession

One of the major problems in the water sector is the decline in the capacity to administer capital expenditure. Nine of the 12 respondents stated that capital expenditure had improved once the concession was in place. This is confirmed by the World Bank and National Treasury evaluation (Bender and Gibson, 2010: 29) although it does show that they achieved only 72% of the total capital investment required by the initial contract but this was largely due to under spending in the first five years as a result of changes in national policy for free basic services which resulted in renegotiations. They show that performance in the second five years was much closer to the contract stipulations. In general, projects can be funded in three ways: a) Municipal Grant Funding (MIG) is a conditional grant that a municipality can make for large projects, such as a new reservoir, and usually pertains to projects in rural areas with poor cost recovery; b) the concession can fund projects in its appointed area; and c) very large projects, such as a new dam, are generally funded by DWAF. In certain peri-urban areas, cost recovery is so low that MIG funding is the only option. The concession projects are funded from the profit of the concession. However

the municipality approves capital expenditure and also the tariff on a yearly basis to prevent excessive tariffs. The municipality-owned infrastructure was rented out to the concession for a rental fee. Concession investment funded from providing water at a financial cost, gave some demonstration of a self-sustainable business model for water service delivery. Municipal respondents were satisfied with this and claimed that this was the intention of the concession. In urban areas the concession had an autonomous supply where they extracted water from the river, purified it, supplied it to the consumer and collected payment. The concession invested CAPEX in the water reticulation system, such as pipes, payment meters, and pumps for maintenance and expansion. Respondents stated that pump stations previously in municipal control were not properly maintained and that the concession had to assist.

The inability to administer capital was a major limitation in the South African water sector (Ensor, 2010; DBSA, 2012). An improvement in the capacity to spend allocated budgets due to the concession was noted by 11 of the 12 the respondents interviewed. The municipality had a Service Level Agreement (SLA) with the concession where these projects are given to the concession to implement. The concession executed the projects on behalf of the municipality and received a project management fee. The municipality did not have the capacity to formulate plans for capital projects. Prior to the concession this function was outsourced to engineering consulting companies. Respondents claimed that project execution was faster due to in-house planning and engineering skills. In addition, since the asset was held by the concession, they ensured that the quality of construction was of high standard. Improved in-house skill levels were a common thread in all themes. Bender and Gibson (2010: 29) report that between 1999 and 2009 the concessionaire had executed $13.6 million of the CAPEX projects required by the original contract and subsequent supplementary agreements: 'R111 million [$11.1 million], or 82%, of the total R136 million [$13.6 million] of investment has been in previously underserved areas, including a new wastewater treatment plant in Matsulu and over 25km of new water distribution lines in South Nsikazi rural area. Approximately half of the R111 million [$11.1 million] invested in previously underserved areas has been in the rural areas, for extension of water services and bulk supplies and VIP toilet installation, and half in the urban areas of Kanyamazane, Matsulu and Tekwane.'

As regards maintenance of systems, procedures and infrastructure, the Treasury evaluation again finds that they met this contract provision (Bender and Gibson, 2010: 30): 'The concessionaire has implemented a comprehensive asset register that not only complies with MFMA requirements but will also be a valuable working tool for maintenance and refurbishment of assets. It has also implemented and maintains modern GIS water and sanitation master planning and a fault reporting and repair system that links with the customer billing and service level data. While these systems are being used by a number of WSAs in the country, this is one of the few operations that has obtained wider benefits through the effective use of the different planning, modelling, and maintenance and customer systems.'

4.1.3 In-house concession skills and experience

Half of the respondents noted that the concession brought higher levels of skills and experience. This resulted in better performance, increased functionality in terms of building plan approvals, township establishment and project management. Again the Treasury evaluation confirms this and states that 'employee programmes are strengths of the concessionaire' and highlights the high levels of training provided by the concessionaire (Bender and Gibson, 2010: 40). Respondents submitted that concession staff had engineering and concession management experience from around the world and used this effectively when managing the Mbombela concession. For Sembcorp this was one of many concessions around the world. A seconded municipal engineer summed it up: 'This is the water industry. You (the concession) have efficient plumbers, highly qualified, highly competent people... and the company has invested a lot in terms of financial resources and personnel. They don't strike for equipment.' The concession had the ability to employ suitably skilled and experienced personnel. A municipal manager explained it as follows: 'They (the concession) are able to recruit people with capacity to occupy certain positions that are critical to the water service centre whereas in our case (the municipality) it is much more difficult. Sembcorp Silulumanzi is a private company, so their regulations are more flexible for employment. For the municipality to recruit an engineer or lower level post we (the municipality) compete with other organisations and the municipality cannot counter offer.'

4.2 Social impact of concession

Table 4 shows the summary of opinions from respondents about the Mbombela Concession on the impact of private investment on social goals. The analysis of the responses is discussed further below.

4.2.1 The concession influence on equitable water distribution and service delivery

Eight of the 12 respondents believed that water distribution in the Mbombela concession area was equitable. Respondents commented that although distribution was equitable, the rural areas were still faced with challenges. The infrastructure in rural areas was not adequate for servicing rural areas. Certain rural areas got water on a rotational basis and not daily. All respondents accepted that the rural areas were facing challenges, even areas out of the concession. However, all respondents (bar one) submitted that the concession had improved water service delivery to the rural poor. Examining the actual data in informal areas reveals a mixed picture. On the positive side, those without access to water declined dramatically between 1999 and 2009, from 79% to 9%. But a large percentage of houses are still without a 24-hour water supply and this is the primary negative issue identified by Bender and Gibson (2010), and the number one issue cited by customers and councillors.

Cost recovery in the urban areas was much better than the rural areas. Bender and Gibson (2010) confirmed this quantitatively with urban Nelspruit contributing 95% of collected revenue. Hence there was some level of cross-subsidy. However the tariffs were controlled by the CMU to keep tariff levels in check. In addition, government, via the municipality, invested MIG and other grants into rural areas for infrastructure. Therefore paying city dwellers were protected from unfair pricing. The CMU also had KPIs in line with social targets in the concession contract. In terms of affordability there was an indigent policy for those who could not afford water allowing them to get discounted rates above the free 6kl a month. Bender and Gibson (2010) show that tariffs in the concession area are well in line with those charged by other similar municipalities in South Africa.

Eleven of the 12 respondents believed that service delivery to the rural poor had improved with the introduction of the concession in Mbombela. Key indicators of this were more areas with 24-hour supply, MIG project implementation, improvements in intermittently supplied areas and areas with unpiped supply (see Bender and Gibson, 2010).

'(Before the concession) people had been getting water once a week. Sometimes they get water today and then don't know when they will get water again,' said a seconded municipal respondent. Intermittent supply was still an issue with hard-piped connections. This is confirmed by actual data as in 1999, 63% of households in formal areas of Mbombela did not have access to 24 hour water but this improved substantially to 18% by 2009. In informal areas, those without water supply fell from 79% to 9% over the same time period (Bender and Gibson, 2010: 24). Reservoirs were present in areas where there were standpipes. Consumers that received water once a week were now getting daily service. Respondents commented that prior to the concession reservoirs were empty because supplies were only delivered twice a week. Under the concession the water was available on a daily basis and the reservoirs always had water in them.

4.2.2 The concessions' impact on service cut-offs

Seven of the 12 respondents submitted that water service cut-offs due to non-payment had increased with a concession in place: 'We (the concession) are more rigorous in terms of credit control' claimed a respondent. The concession is responsible for revenue collection and hence also consumer debt resolution. In reality the picture is more mixed. Actual revenue collection of billings in Nelspruit between 1999 and 2009 remained good and constant at over 90% but outside of the city these collections are substantially lower which meant that the concessionaire has not met its targets Nonetheless, actual total billings did rise from 45,299,076 in 2000/1 to 146,434,322 in 2008/9 and collections from 32,929,907 to 114,892,741 over this time period (Bender and Gibson, 2010: 33).

Non-payment is a key issue. One respondent mentioned that cut-offs were a strategy to make people pay. However the service itself is restricted but is not fully cut-off. A trickle flow device is used to restrict the flow, although one

respondent mentioned that after a period of three months the service could be completely cut-off. There is a credit control policy that allows for this action. 'Up to now there have been few complaints about service cut-offs. We have been convinced that they (the concession) haven't abruptly switched off anyone's service,' said a municipal respondent.

There were differences in consumer attitudes between urban and rural areas. In the urban areas there were some problems but people were generally paying. Respondents submitted that in town payment was different since this was a mainly middle class area and people were embarrassed to have their water turned off. In the township they did not care. 'People complain that they get the same service as the other people who are not paying,' mentioned a respondent. A culture of non-payment was brought up by multiple respondents and was further discussed along with illegal connections under the political influence theme: 'It's a continuous cycle and it gets worse and worse. When they (non-paying consumers) are disconnected, instead of paying and reconnecting, they get an illegal connection. Then they (the concession) go again for a fresh start and send an inspector and a plumber to find the illegal connection. People start paying again and then again it goes (non-payment) again. It is very costly for Sembcorp. In some areas the payment is so low that it costs the concession more to keep it alive.' Buhl-Nielsen (2001: 194) argues that water users are acting like maximising consumers but that rational maximising behaviour does not necessarily lead to high cost recovery, in fact often quite the opposite. He states that in the short term, non-payment is rational if there are no immediate consequences, and longer term interests are discounted by a situation where consumers perceive that they have little influence on decisions. Political interests often result in water systems being sacrificed for political control.

5 Conclusion

Bender and Gibson (2012: 45) in a ten year World Bank and National Treasury evaluation of the Mbombela concession concluded that 'it is operating at a high level of operational and financial performance, and has yielded significant benefits for the Municipality and its water and sanitation customers. Based on the authors' experience of working with, and assessing, a number of other South African WSAs and WSPs, it is the conclusion of this study that water and sanitation services in the concession area are in much better condition than if the Municipality had continued to operate them directly out of one of its own departments.'

The challenges South Africa has been experiencing in terms of service delivery protests points to the need for innovative solutions. Whilst the state has an essential role to play in the arena of public goods, there are many hybrid options worth exploring. Even in a country such as Sweden with its much vaunted welfare state, the state has accepted the need for alternative delivery methods. Increasingly in that country we have seen shifts towards publically funded but privately delivered models in sectors ranging from education, to social security

and health care. By almost all measures, Sweden has one of the most efficient and capable states and even there there has been recognition that the state cannot do everything without being overwhelmed. There are important lessons in this for South Africa which has tremendous developmental backlogs and challenges. The line between public and private has become blurred worldwide and increasingly countries are opting for whatever model works best in a particular case and are not being bound by ideological predispositions. It is clear in South Africa that the state cannot surrender its socio-economic responsibilities to the private sector which will cherry pick the best and most lucrative options leaving poorer communities underserviced but this does not imply that the state can go it alone. It simply does not have the capacity to do so.

The experience in Mbombela provides useful insight for other developing areas as to how it is possible for private participation in the water sector to result in increased efficiencies without retarding social improvements. These concessions need to be carefully managed with appropriate KPIs to ensure that they are not merely profit focused but are actively pursuing social goals as part of their contract. It also highlights that such concessions still require active state participation in ensuring that the contract conditions are met through strong oversight and monitoring. The public sector cannot completely absolve itself from responsibility by outsourcing through a concession.

References

[1] Ahlers, R, 2010. Fixing and nixing: The politics of water privatization. Review of radical political economics, 42(2), 213-230.

[2] Anon, 2012. Bushbuckridge Local Muncipality Annual Report Financial Year 2010/2011, http://www.bushbuckridge.gov.za/Reports/Annual+Report+-Draft+2010-1.pdf Accessed 20 April 2012.

[3] Bender, P & Gibson, S, 2010. Case Study for the 10 years of the Mbombela (Nelspruit) Water and Sanitation Concession South Africa, World Bank, Johannesburg.

[4] Buhl-Nielsen, E, 2001. Cost Recovery and Maximisation in Water Supply: An Institutional approach, PhD, University of Witwaterand, Johannesburg.

[5] Clarke, GRG, Kosec, K & Wallsten, S, 2009. Has Private Participation in Water and Sewerage Improved Coverage? Empirical Evidence from Latin America, Journal of International Development (21), 327-361.

[6] Clarke, GRG, Menard, C & Zuluaga, AM, 2002. Measuring the Welfare Effects of Reform: Urban Water Supply in Guinea, World Development, 30(9), 1517-1537.

[7] de Gouvello, B & Scott, C, 2012. Has water privatization peaked? The future of public water governance, Water International, 37(2): 87-90, DOI:10.1080/02508060.2012.663614

[8] Development Bank of Southern Africa (DBSA), 2006. Infrastructure Barometer 2006, DBSA, Midrand.

[9] Development Bank of Southern Africa (DBSA), 2012. The State of South Africa's Economic Infrastructure: Opportunities and Challenges, DBSA, Midrand.

[10] DWAF, 2012. Blue Drop Report 2012. Pretoria. http://www.dwaf.gov.za/Documents/BD2012/Mpumalanga.pdf

[11] DWAF, 2012. Department of Water Affairs Strategic Plan (Annual Performance Plan) 2011/12-2013/14, Pretoria. www.dwaf.gov.za/documents/Other/Strategic%20Plan/FINAL2011STRATEGICPLAN.pdf Accessed 23 May 2012.

[12] De Villiers, GDT, Schmitz, PMU & Booysen, HJ, 1996. South Africa's Water Resource and the Lesotho Highlands Water Scheme: A Partial Solution to the Country' Water Problems, Water Resources Development, 12(1), 65-77.

[13] Ensor, L, 2010. Municipal leaders should account for underspending of grants, Business Day, 8 October 2010, p.1.

[14] Estache, A, Gomez-Lobo, A & Leipziger, D, 2001. Utilities Privitisation and the Poor: Lessons and Evidence from Latin America, World Development, 29(7), 1179-1198.

[15] Galiani, S, Gonzalez-Rozada, M, & Schargrodsky, E, 2009. Water expansions in shantytowns: Health and savings. Economica, 76(304), 607-622.

[16] Gialis, S. E., Loukas, A., & Laspidou, C. S, 2011. Theoretical perspectives and empirical facts on water sector privatization: the Greek case against European and global trends. Water resources management, 25(6), 1699-1719.

[17] Gruber, J, 2007. Public Finance and Public Policy, 2nd ed., Worth Publishers, New York.

[18] Hailu, D., Osorio, R. G., & Tsukada, R, 2012. Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector?. World Development, 40(12): 2564-2577, http://dx.doi.org/10.1016/j.worlddev.2012.05.032

[19] IEG World Bank, 2010. An Evaluation of World Bank Support, 1997-2007 Water and Development Overview, Independent Evaluation Group, Washington D.C.

[20] Marin, P, 2009. Public-Private Partnerships for Urban Water Utilities: a Review of Experiences in Developing Countries, in 5th World Water Forum, Instanbul, Turkey, 16 March 2009.

[21] Mbombela Local Municipality, 2012. Annual Report 2011/2012. Mbombela.

[22] Mcgahan, A, Klein P, Mahoney, J & Pitelis, C, 2009. The Economic Organization of Public Entrepreneurship, In The Druid Summer Conference 17-19 June 2009, Copenhagen.

[23] Molobela, I. & Sinha, P, 2011. Management of water resources in South africa: A review, African Journal of Environmental Science and Technology, 5(12), 993-1002.

[24] Narsiah, S, 2008. Discourses of privatisation: the case of South Africa's water sector, Development Southern Africa, 25(1), 21-35, DOI:10.1080/03768350701836152

[25] National Planning Commission, 2012. National Development Plan 2030, The Presidency, Pretoria.

[26] Newmarch, J, 2010. Incentives for clean water supply, Business Day, 8 October 2010, p.1.

[27] Nleya, N, 2008. Development policy and water services in South Africa: an urban poverty perspective, Development Southern Africa, 25(3), 269-281, DOI:10.1080/03768350802212048

[28] Nzimakwe, TI, 2009. Water and sanitation provision through public-private partnerships: Challenges for municipalities, Africanus, 39(1), 52-65.

[29] Tortajada, C, 2003. Public-Private Partnership in the Water Sector: The Case of the Middle East and North Africa Region, In Third World Centre for Water Management, Cairo Egypt, 106-111.

[30] Wilder, M & Lankao, PR, 2006. Paradoxes of Decentralisation: Water Reform and Social Implications in Mexico, World Development, 34(11), 1977-1995.

Table 1: Top 10 Water Sector Issues and Challenges in South Africa

Issues	Challenges
1. Weak and/or poor institutional frameworks (management and governance)	Strengthening and/or reforming water institutional frameworks to ensure strong and integrated management and governance structures to, among other things, ensure understanding of roles and responsibilities.
2. Lack of adequate funding, poor application of funds and/or lack of appropriate funding options and financing structures	Ensuring adequate funding and financing mechanisms for water sector projects supported by appropriate institutional frameworks.
3. Shortage of operational and management skills	Development and implementation (financing) of skills development and capacity building programmes for the water sector that align with international best practice.
4. Pollution of water resources by human activities, especially poorly operated and maintained wastewater treatment works and industrial effluents	Managing and preventing the pollution of water resources through appropriate regulation for domestic, industrial and agricultural activities; management of effluent from mining activities (acid mine drainage); and agriculture in some areas is posing immense challenges.
5. Poor water conservation and demand management across the entire water sector value chain, leading to high water losses	Institutionalisation of the implementation of water conservation and water demand management measures to ensure the allocation of dedicated resources for their implementation and integration in all infrastructure developments. Such institutionalisation can also enhance the capacity of water services providers to prepare WC/WDM bankable projects that can attract funding (especially with respect to dealing with water losses).
6. Poor operation and maintenance of infrastructure	Development and implementation of best practice asset management programmes (which are budgeted for), for the optimal operation and maintenance of existing water resources and services infrastructure.
7. Rehabilitation and/or upgrading of infrastructure	Development of funding/financing mechanisms for rehabilitation programmes given that some of the infrastructure was initially constructed without consideration of the need for maintenance funding.
8. Resources management and development (water mix) in an environment of scarce water resources	Implementation of water allocation and processing of licences on time under conditions of constrained technical capacity; exploitation of alternative water sources (and conventional surface water where the potential exists); development of bulk infrastructure that promotes economies of scale.
9. Poor domestic water quality management	Ensuring the provision of potable, safe domestic water, especially for drinking.
10. Provision of or access to water services, especially in rural and unplanned settlements where unemployment and poverty levels are high	Addressing water services backlogs, i.e. lack of access to water services infrastructure, in poor and rural areas where cost recovery is difficult or impossible and reticulation infrastructure expensive to roll out.

Source: DBSA, 2012: 84

Table 2: Views of Respondents as to the Impact of Private Investment on the Economic Goals of Efficiency, Capital Spending and Service Delivery

Factor Change after Private Investment / Respondent Position	Efficiency Increase	Capital Increase	Structure Improvement	Increased Capacity in Spending Budget	Improved Service Delivery
For	10	9	9	11	12
Against	0	0	0	0	0
Mixed	0	1	1	0	0
No response	2	2	2	1	0

Table 3: Population Served At or Above the Basic Level of Service within the Mbombela Concession as Contrasted with the South African National Averages - 1999 and 2009

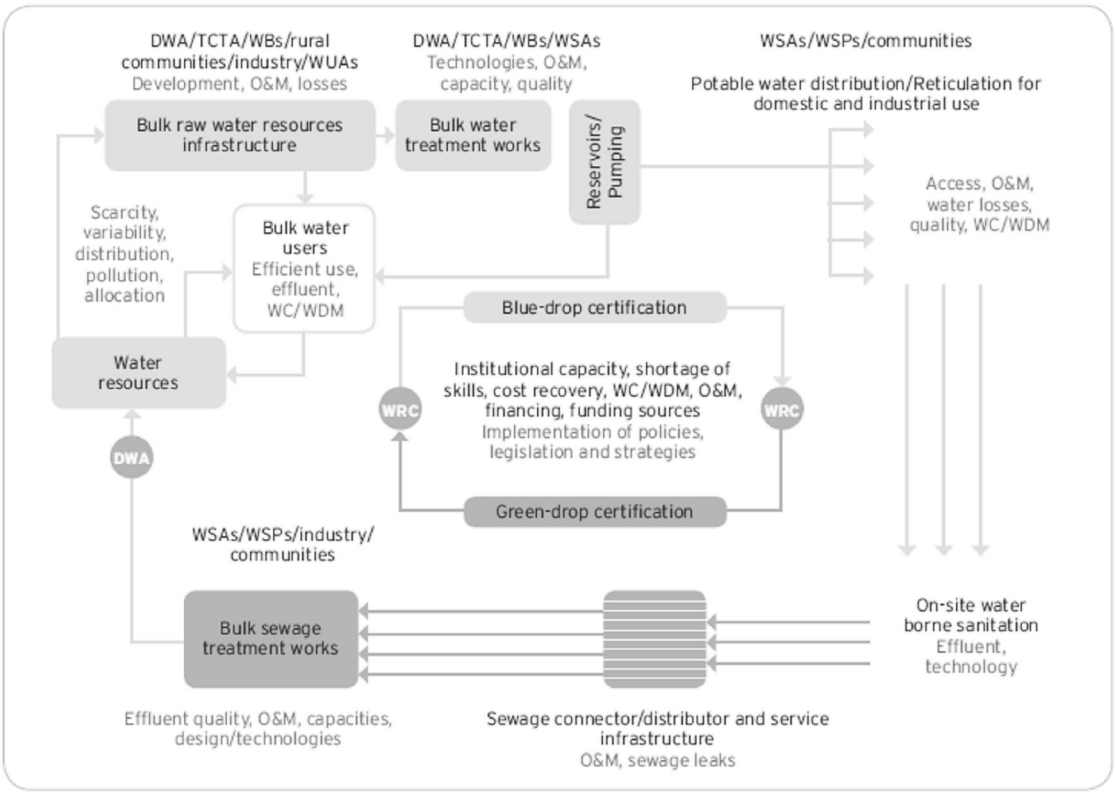
	1999			2009			Growth
	Total	**Above basic**	**%**	**Total**	**Above basic**	**%**	
Mbombela Concession							
Urban	95,000	95,000	100%	134,830	134,830	100%	42%
Rural	120,000	25,000	21%	233,170	190,025	81%	660%
Total above Basic LoS		**120,000**			**324,855**		**171%**
Total population	**215,000**		**56%**	**368,000**		**88%**	**71%**
South African National Statistics							
Urban	24,816,564	19,613,168	79%	29,525,791	28,001,254	95%	43%
Rural	17,922,277	8,611,244	48%	19,921,962	15,686,928	79%	82%
Total above Basic LoS		**28,224,412**	**66%**		**43,687,882**	**88%**	**55%**
Total population	**42,738,841**			**49,447,753**			**16%**

Source: Bender and Gibson, 2010: 23

Table 4: Views of Respondents as to the Impact of Private Investment on the Social Goals Relating to Service Delivery and the Equitable Distribution of Water

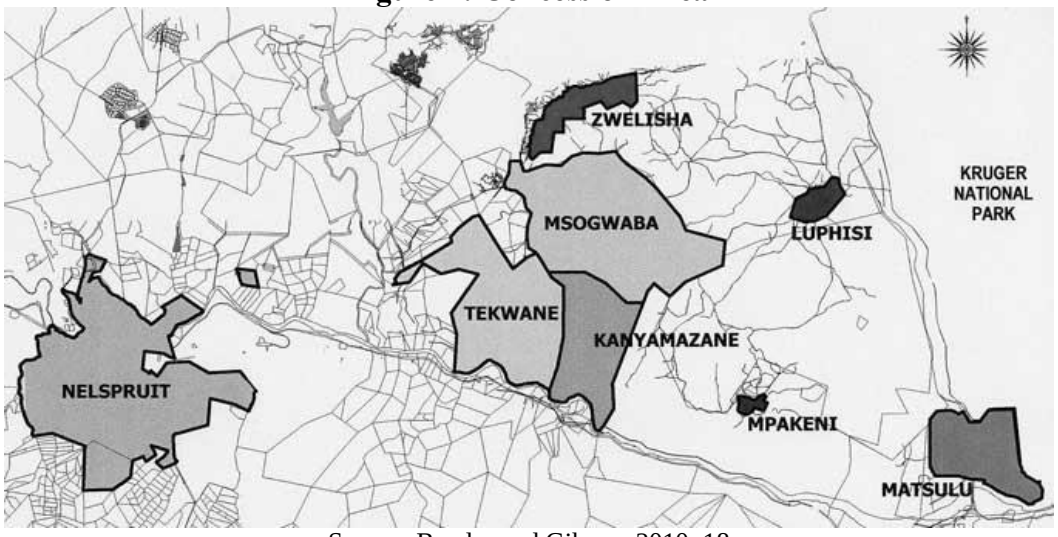
Factor Change after Private Investment / Respondent Position	Increased Service Cut-offs	Reduced Service Delivery to the Rural Poor	Equitable Distribution of Water
For	7	0	8
Against	2	10	0
Mixed	1	0	2
No response	2	2	2

Figure 1: The Water Sector Value Chain, its Stakeholders and Issues



Source: DBSA, 2012: 83

Figure 2: Concession Area



Source: Bender and Gibson, 2010: 18