



GAUTENG: Save Water or Pay the Price

If Gauteng's present spendthrift water ways continue, the province's water resources could be fully utilised by as early as 2016. However, finding ways of using water more efficiently is only one of the challenges South Africa's economic heartland faces as revealed at the Gauteng Water Summit, held in Midrand in October.

Lani Holtzhausen reports.

If Gauteng is the economic engine of South Africa, water is the fuel that keeps that engine running. But this powerhouse faces significant challenges around water and sanitation which, if not addressed adequately, could cause economic growth to grind to a halt.

With the Witwatersrand forming the watershed between the Vaal, Olifants and Crocodile rivers, Gauteng has

little of its own bulk water resources. This has made the province reliant on a series of complex transfer schemes importing water from the Thukela, Usutu, Komati and Orange rivers (the Lesotho Highlands Water Scheme). About 88% of the province's water is imported.

But this intricate web of bulk water infrastructure comes at a price. Water prices in the province have increased

exponentially over the last few years. Customers of Rand Water, the main water supplier in Gauteng, now pay 315.45 cents a kilolitre for purified water, with raw water costs accounting for 53% of the water utility's input costs.

RISING DEMAND

These costs could rise further in future as demand for water in the

province persists, leading to additional bulk infrastructure requirements. Investigations into the feasibility of building more dams in Lesotho are already underway following the signing of an agreement between the governments of the mountain kingdom and South Africa. Early indications are that this augmentation infrastructure could cost as much as R30-billion. End users are sure to bear the brunt of the cost of this infrastructure through further water tariff hikes.

There have been increased calls for the provincial government to look at alternatives to augmentation, such as the increased use of groundwater resources, and the reuse of treated effluent.

“In Gauteng, the availability of water will certainly play a role in the future development of the province,” Minister of Water Affairs & Forestry Buyelwa Sonjica told delegates at the Summit, which explored how the water sector could be aligned to meet Gauteng’s economic growth and development targets. “Water can either be a contributor to growth or a

constraint, and we must make sure that it is not the latter. We must think how to get more jobs per drop and more products per drop.”

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Contributing about 34% to the country’s gross domestic product, Gauteng is responsible for about 1 355 m³ or 11% of South Africa’s yearly bulk water use. Unlike the rest of the country, irrigation is not the main water user in the province. In fact, it is only responsible for 6% of the annual bulk water consumption. Almost 80% of Gauteng’s bulk water supply goes to the urban sector, with



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mining and industry being the second-largest water users (9%).

SOPHISTICATED SUPPLY

Gauteng boasts sophisticated supply infrastructure, with about 97% of the province’s residents enjoying at least basic access to potable water. The piped networks are extremely dense, and cover most formal and informal

TABLE 1 Basic water services backlog figures from metropolitan municipalities					
	Population	Above RDP	Below RDP	On RDP	Agricultural holdings
Tshwane	2 million	1,7 million	96 000	233 000	0
Johannesburg	3 million	2,5 million	228 000	334 000	0
Ekurhuleni	2,7 million	2,3 million	176 000	97 000	97 500

Source: DWAF Water Services Planning Reference Framework

TABLE 2 Estimated costs to address water services infrastructure backlogs							
Infrastructure service	Tshwane	JHB	Ekurhuleni	West Rand	Sedibeng	Metsweding	Total
Basic water and sanitation	R1,095-bn	R2,34-bn	R2,35-bn	R285-m	R880-m	R620-m	R7,57-bn

Source: DWAF Water Services Planning Reference Framework

TABLE 3 Basic sanitation backlog figures from metropolitan municipalities					
	Population	Above RDP	Below RDP	On RDP	Agricultural holdings
Tshwane	2 million	1,6 million	351 000	43 000	0
Johannesburg	3 million	2,5 million	537 000	26 000	0
Ekurhuleni	2,7 million	2,3 million	181 000	97 000	97 500

Source: DWAF Water Services Planning Reference Framework



Top left: Historic rivers, such as the Apies have been reduced to mere canals.

Top right: Concrete jungle: Gauteng's burgeoning growth is placing increasing pressure on its water resources.

Bottom right: You won't catch many swimming here – Many of Gauteng's rivers are severely polluted.

areas in the province. In turn, at least 93% of the population have access to basic sanitation (there are about 4 660 households that still use the bucket system).

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However, the provincial government faces severe challenges in this regard due to the continued influx of people from other provinces, and from neighbouring countries. This can be seen in the growth in population from 6,6 million in 1994 to 9,8 million in 2005. About 20% of the population reside the province's 394 informal settlements.

“While Gauteng's process towards the provision of basic services has been impressive (the province has supplied basic water to 2,3 million residents and basic sanitation to 500 000 residents since 1994), the huge population growth continuous to shift the goal posts,” commented Helgard Muller, DWAF Executive Manager: Water Services. The estimated cost to eliminate the present water backlog is in excess of R1-billion, with at least R1,9-million needed to provide remaining communities with basic sanitation.

Of course, as Gauteng develops, people also expect raised levels of infrastructure, and this is something municipalities will have to consider in future planning.

WASTED RESOURCE

Water wastage remains a further concern. According to Cain

Chunda, DWAF Manager: Water Use Efficiency, only 48% of the water supply for the domestic and commercial sector in Gauteng is used efficiently. This inefficiency is due to factors such as physical system losses, water wastages and non-revenue water. “At present, water wastage and losses account for 25% of total water supply, which translates into a loss of R500-million a year,” said Chunda.

Given this current situation on water use inefficiencies and wastages, there is major scope for water conservation and water demand management (WC/WDM) to improve water use and manage demand in the province. According to Chunda, a 10% to 15% saving through WC/WDM can be achieved at minimum costs, which can save more than 150 million m³ a year (this translates to about R300-million per annum).

“We need to put the brakes on premature capital expenditure,” noted Chunda. “Water WC/WDM is no longer an option but an integral part of the solution to our water challenges and ensuring sustainable growth and development in Gauteng. It must be prioritised and accorded the same level of importance that is given to infrastructure augmentation.”

These and other water issues are currently being investigated by DWAF as part of the Vaal Reconciliation Study, which hopes to develop the necessary strategies to meet Gauteng’s growing water requirements.

OPERATION AND MAINTENANCE

One way of reducing waste is ensuring the optimal operation and management of water supply infrastructure. “Good management of operations is critical if we are to avoid not only dry taps, blocked toilets and polluted rivers, but more specifically the outbreak of waterborne diseases such as typhoid and cholera,” said Sonjica. “It is the responsibility of each municipality to ensure proper planning, budgeting and management of such structures.”

The Minister did add that, as part of Project Consolidate, her department had instituted a programme to monitor the performance of water purification plants and sewage treatment works to assist in identifying possible health risks and addressing these.

“The present lack of infrastructure maintenance in Gauteng is causing existing infrastructure to fail, which means that the existing backlog may increase,” noted Muller. Critical refurbishment costs in Gauteng are reportedly nearing R500-million. However, estimated are the present funds for operation and maintenance are only 50% of what is required to keep infrastructure in a good working state.



- ◆ Gauteng is South Africa’s smallest province, covering only 17 000 km² yet accounts for about 33% of the country’s gross domestic product.
- ◆ The province has a population of about ten million. It has by far the highest population density and the highest growth rate.
- ◆ Areas such as Alexandra, Soweto, Tembisa, and Mamelodi have densities of over 10 000 people/km².
- ◆ Gauteng is about 94% urbanised, with agriculture accounting for only 1% of total employment.
- ◆ Gauteng generates 80% of the total waste stream in South Africa, and has the highest volume waste per capita.
- ◆ The province has the second highest national access to potable water at 97,5% (partly due to the small rural areas in the province).
- ◆ Gauteng has the highest levels of access to adequate sanitation in South Africa (93%).

RESOURCE POLLUTION

This lack of adequate maintenance adds to Gauteng’s pollution concerns worsened by the large population, mining and industrial developments and the short river sectors. Although discharge standards for wastewater are high, the condition of the available streams and rivers is not healthy and most are in a fair to poor state, especially those close to the central watershed in Johannesburg and Ekurhuleni.

Sulphate and salinity levels are highest along the central mining belt (includes the Blesbokspruit, Klip River, Wonderfonteinpruit and Suikerbosrand rivers); while faecal coliforms in the Pienaars, Hennops, Klip and Suikerbosrand rivers have found to be unacceptably high. At the same time, most of the major dams in Gauteng

have unacceptable levels of eutrophication leading to algal production.

Effluent return flows from the urban areas forms a major part of the total river flow and is mostly used in the provinces downstream of the province, i.e. North West, Limpopo, Mpumalanga and Free State. The province will have to strike a careful balance between looking after its limited water resources and lifting people out of poverty while supporting economic growth and development.

As pointed out in the Gauteng Development Strategy, launched earlier this year: “The growing social and environmental challenges are in increasing burden on Gauteng’s stability and sustainability.” Unless these challenges are addressed they will pose a significant complication for the future prosperity and development of the province. 