

# 1. Developing crisis number two

17.5.2008 *Weekender*

*Skills shortage has meant increased pollution and water-borne diseases, which have already killed too many, writes BHEKI MPOFU*

SA's straining water supply system is putting the health of millions of people at risk, and experts warn that a crisis similar to that in electricity supply will develop if no immediate steps are taken to preserve water quality.

Concerns about the supply and safety of SA's drinking water have been heightened by recent outbreaks of disease that have left thousands sick and scores dead after drinking contaminated water. These deaths are directly attributed to the shortage of skilled personnel to manage the water supply.

SA, one of the most water-stressed countries in the world, could run out of adequate supply within 17 years if nothing is done to change usage patterns and conserve water.

And with the demand for clean water expected to outstrip supply and the cost of bringing it to consumers rising very fast, South Africans can also expect to pay more for water in the future.

A water crisis would be disastrous for a country already battling a crippling electricity crisis, an overburdened and ailing transport system, rising food and fuel prices, and an economy experiencing a slow down.

Water Affairs and Forestry Minister Lindiwe Hendricks

earlier this year dismissed suggestions of a water crisis. But experts do not agree.

"If we do not manage our water resources properly, water could begin to constrain development, as is happening with transport and energy. Then we will have a crisis," says Mike Muller, a professor at Wits university's Graduate School of Public and Development Management and former director-general of the water affairs and forestry department.

"Our water will only be as safe and secure as our ability and resolve to do what needs to be urgently done."

The threat to SA's water safety comes from a combination of pollution and poor management of water resources, sewerage works and treatment plants.

Polluted water caused the deaths of nearly 80 children in the Ukhahlamba district of Eastern Cape recently from suspected waterborne diseases.

South Africans most at risk are in small towns served by rural water schemes — some of which have already experienced outbreaks of cholera and typhoid, and water shortages.

Environmental experts point to industrial waste and the government's failure to maintain SA's sewerage systems as the main reasons for the dangerously high pollution levels in rivers and other parts of the water system.

With inadequate sewerage systems in place, large quantities of waste are being washed into rivers, where they make their way to overburdened water purification plants. Pollution also occurs as a result of acidic drainage from gold and coal mines.

"Water quality is becoming more important and this was reflected in the 1998 National Water Act, which envisaged the establishment of catchment management agencies, which would regulate allocation of water

and pollution control measures," says Richard Holden, a water and sanitation specialist with Trans-Caledon Tunnel Authority.

"However, this has not happened and the waste discharge system as envisaged ... has not been implemented."

There is a dire shortage of technical skills in municipalities, which are critical to the delivery of healthy water to millions of consumers, especially in poorer areas. Engineers and technicians are instrumental in the construction, maintenance and repair of water infrastructure, as well as the treatment of water.

Water affairs and forestry department spokesman Themba Khumalo says the shortage of skilled personnel is a widespread problem in municipalities. Skilled personnel are being lured into the private sector, where salaries and conditions of employment are much better.

The Delmas and Ukhahlamba municipalities do not have trained staff to detect contamination or properly treat drinking water.

"The shortage of engineers and technicians is a big problem for municipalities, and the department is very concerned about it," Khumalo says. "You need specially trained people in the treatment of water, who will, for instance, know how much chlorine is needed. For as long as this problem persists we will continue to have these fatalities around the country."

He says the department has established bursaries to attract young people to study specialised courses on water issues.

Muller says a third of municipalities are crippled by the shortage of skilled people, critical to the delivery of services. "The ability of municipalities to keep piped water clean and safe depends on having appropriately qualified people in place to lead service provision, and currently many municipalities are in a state of crisis because they do not have enough of these people on their staff. Organisational com-

petence is a major issue."

What compounds the problem of water safety is that, according to the constitution, sanitation and the provision of clean water are a municipal function, and most municipalities are battling with a general failure in sanitation systems.

While the water affairs and forestry department manages the major infrastructure in the country and allocates water, municipalities are responsible for distributing water to consumers and providing sanitation services.

Because of the constitutional arrangements, it is very difficult for the government to intervene when a municipality fails to provide adequate services. Most of the failures that are reported are at a municipal level, and not at a national level.

Muller says the quality of SA's water services cannot be seen in isolation from the state of municipalities — more than a third of which are in an administrative crisis.

"In small towns and poor communities there is no guarantee that the water is safe to drink. In addition, millions of people in poor rural communities are living in dangerously unhealthy environments because sanitation delivery there has stalled," says Muller.

He says the government has given priority to the eradication of the bucket system in about 250 000 households in townships at the expense of the majority.

"We have focused too much attention on only 200 000 households out of about 3-million in need of proper sanitation."

The problem in most of these municipalities is worsened by poor credit control, leading to billions of rands of debt, and the inability of the municipalities to fund operations and the maintenance of infrastructure.

Holden says pump stations wear out quickly and require huge amounts of maintenance. "The biggest concern is the state of our sewage infrastructure, not just the wastewater treatment works but the pipes and pump stations."

"Because only capital costs are looked at in the design of works, it is not appreciated that a gravity system is cheaper over 20 years

than replacing pumps every five years. The problem is that the money is not in the budget for this, and as a result there are frequent breakdowns and spillages of sewage into the environment."

He says sewage produces hydrogen sulphide, which is toxic to humans and causes a "sulphide attack" on concrete sewers. Recently, in the Matjhabeng Local Municipality in Welkom, this had been the cause of numerous collapses of the main sewer.

A problem the government cannot solve is SA's ranking of 30th out of the 180 driest countries in the world.

Holden says if SA does not manage water usage, adequate water supply could dry up by 2025.

The cost of water is expected to escalate in future as water will need to be transported from sources further and further away from consumers. "Water demand management, therefore, is an important tool in ensuring that demand is kept within acceptable limits," says Holden.

## Recent water incidents

■ Over the past three months 80 children have died of diarrhoea after drinking dirty tap water in the Ukhahlamba district municipality, which includes the towns of Barkly East, Maclear, Sterkspruit and Elliot in Eastern Cape. There was a breakdown at a municipal water purification works last October.

■ Nearly 2 000 people were treated in Delmas and Standerton, Mpumalanga, between October and February following an outbreak of diarrhoea. The province's ailing sewage system was blamed.

■ Although no proper audit has been done, several municipalities face a chronic shortage of technical skills required for the delivery of clean and safe water.

■ A few days after the Dusi Canoe Marathon in January, about 40% of participating canoeists came down with diarrhoea. The Msunduzi River in KwaZulu-Natal, on which the race is held, had *E. coli* bacteria levels of 115 000 per 100ml nine days before the race. Acceptable levels are between 100 and 1 000.

■ In February, the water affairs and forestry department said more than half of SA's public dams — including the biggest, the Gariep Dam in Free State — did not comply fully with modern-day safety standards. It

said that in October last year, 160 of the country's 294 dams did not comply with safety standards.

■ In March, four of Durban's beaches were stripped of their Blue Flag status by the international rating body due to high levels of faecal pollution.

■ A report by national aquatic biologist Dr Mark Graham said almost 30% of Durban's watercourses were polluted.

■ The Democratic Alliance said a study it conducted recently found that many water boards delivered water that contravened safety standards and contained dangerously high levels of bacteria. Amatola in Eastern Cape and Bushbuckridge in Mpumalanga were incapacitated by high levels of unpaid debt from municipalities, preventing them from making much-needed investments in infrastructure development.

■ Forty-three out of 83 municipalities in Free State received "code red" ratings last month in the water affairs and forestry department's monthly drinking water quality summary report, indicating that the quality of the water was seriously compromised.

■ Free State University's Jan Roos reported high levels of *E. coli* bacteria in the Vaal River last year.



Star 1-08-2008

## METRO WATCH

### FRIDAYFORUM

## When water is money



**CRY ME A RIVER:** This is how Joburg Water can lose R5-million in three weeks – when a major leak, promptly reported, is ignored.

**PICTURE: ARTHUR BLAKE OFFICIALS**

This water leak costs Joburg Water about R250 000 every day, but officials have ignored it for three weeks.

Consulting engineer Arthur Blake spotted the leak three weeks ago in Johannesburg Road in Lyndhurst, and immediately reported it to Joburg Water, but officials did nothing.

Blake said he reported it again to no avail.

"The amount of clean water per day running down this stream equals about 765m<sup>3</sup> (cubic metres) per hour, which is 21 655

kilolitres a day," said Blake.

At a cost of R11.46 per kilolitre, that's R248 166 per day.

"It's been running for 21 days. This equates to R5 211 492 of lost water," he said.

Joburg Water spokesman Baldwin Matimela said officials could not find any trace of a report of the leak, but said a team would be sent out.

The leak started in the same week Oxford Road collapsed over Gautrain tunnelling.

Bombela Consortium, building the Gautrain, later said the hole had been caused by a number of factors – including a leaking water pipe, and the damage had been made much worse because it had taken Johannesburg Water hours to find the valve, and turn off the water.

At the time Matimela said there had been no indication the pipe was leaking before the collapse, and denied delays in turning off the water.

– Louise Flanagan