

Water and the consumer

Changing our behaviour – How to get the most from your water bill



Even where there is a clear economic incentive through the tariff to reduce water consumption, if the consumer remains unaware of what is reasonable consumption, it will not result in the necessary behaviour change in being proactive about fixing leaks, reducing excessive garden watering and getting teenagers to take shorter showers. Paying for water and not using it effectively is the same as putting it on the braai and cooking it without any meat, argues Richard Holden.



Even where consumers receive regular, accurate monthly bills, this holds true, which means where there is inaccurate or non-existent billing and credit control from a municipality (sadly a common occurrence) there is no hope of trying to change consumer behaviour.

Using the City of Johannesburg as an example, the current tariff for domestic use, on a monthly read meter, is depicted in Table 1. This results in an increasing cost of water as shown in Table 2.

Table 1: The current water tariff for domestic use in Johannesburg, on a monthly read meter

Tariff	Per kilolitre, per erf, per month (excl VAT)
First 6 kl	R0.00
In excess of 6 kl up to 10 kl	R6.18
In excess of 10 kl up to 15 kl	R9.97
In excess of 15 kl up to 20 kl	R14.06
In excess of 20 kl up to 30 kl	R18.46
In excess of 30 kl up to 40 kl	R19.67
In excess of 40 kl	R24.21

Table 2: Cost of water

Cost of water	Excl VAT
6 kl	R0.00
10 kl	R24.72
15 kl	R74.57
20 kl	R215.17
30 kl	R399.77
40 kl	R596.47
50 kl	R838.57

From the author's own experience it could be argued that in a house of four people, a consumption of between 10–15 kilolitres per month is not unreasonable.

While it might be argued that an amount of R30.73 plus VAT is unreasonably low and not cost-reflective, when the sanitation charge is taken into account, which is a fixed monthly charge, the amount appears reasonable for the package of services provided. In fact, the structure of the tariffs is such that if all other things are equal, there is a clear incentive to opt for a sanitation solution that can be managed on site by the household.

The question that needs to be asked is why, when there is such a clear financial incentive to conserve water, is it so common to come across households using in excess of 50 kl per month, and why do they not take action to find the cause and rectify the problem? Since often this is water that the consumer is paying for, but not using in any effective manner, it is the equivalent of putting R6 000 of your money annually on the braai, burning it and not even having cooked meat to enjoy afterwards.

This situation is due to a combination of bad practice at households, municipalities and within the plumbing profession. The key to unlocking this problem is empowerment at household level to get consumers to proactively manage their water consumption.

Five cases in point

Although the general principle is that any leak before the water meter is for the municipal account and anything after is for your account, Lunghisa's experience shows that this is not always the case.

Lunghisa's water bill suddenly tripled, but she swore that there were no leaks in the house. She went to the municipality to complain, but they simply sent her away saying that it was her meter reading. After another month of high water bills Lunghisa then noticed that water was appearing on the surface next to her drive, which was a sure sign that there was a leak in the pipe. The problem, however, was a leak in the meter box between the meter dial and the stop cock. So, although the water had passed the dial, it was still in the municipality's property. Armed with that information Lunghisa was then able to go back to the municipality, and get them to come out and replace the meter.

This can be contrasted with another colleague who also received a high water bill and swore that it could not be his as the meter was covered and had not been read. He had already lodged a complaint with the municipality before requesting assistance from the author. The first check, which involved uncovering the meter and checking the reading against the bill, showed that it was, in fact, his bill.

A quick check also revealed that the outside toilet was overflowing, and then he remembered leaving the hose on overnight, an act which can easily result in 10 kl flowing through the meter. Now put yourself in the municipality's position of trying to distinguish between legitimate queries and where basic checks have not been done.

Toilets overflowing is a very common problem, and in a third colleague's house it was found that all three toilets were overflowing. In fact, one could clearly hear the toilets when entering the house, but the colleague was oblivious to what the sound meant.

A fourth colleague was more aware and realised that his water consumption was too high, so he called out a plumber to try

Looking for leaks

Step 1: Basic steps

1. In an average home with no excessive garden watering or big pool to top up, consumption (including teenagers who stand in the shower for hours) should be between 3-4 m³ per person per month (divide total consumption on your bill by the number of people in the house).
2. Open the meter and check that the meter reading corresponds, or almost corresponds, to that on your bill. If it is widely out then there is probably a billing problem. If they almost correspond then it is a problem after the dial.
3. Check that the meter number (if you can see it) is the same as that on your bill. If it doesn't correspond, then there is a problem at the municipality.
4. If you have a new meter where the shutoff valve is incorporated in the meter box, turn it off. If the meter still runs then the leak is in the meter box and the municipality must replace the meter and refund above the average consumption.

Step 2: Checking for leaks

1. Go through the house and check that taps are not dripping or toilets overflowing (very common). On old toilets it is easy to see if the rubber seal is old and hard. With modern mechanisms, lift the ball valve (or equivalent) and if the toilet still fills, the seal needs replacing – this will cost R5 assuming you know how to do it.
2. If not leaking taps or toilets, then it is leaking pipes, or behaviour (that you don't know about). Do the following checks:
 - a. Look for any damp patches on the walls, particularly where you know there are pipes going to taps, toilets etc.
 - b. Put your ear to the pipes where they come out of the ground/walls etc., and listen for any sounds (make sure dripping taps and toilets are fixed first). If you can hear sounds then you probably have a leak. The louder the sound the closer you are to the leak, where at least you can direct your efforts to this general area.
 - c. If still nothing, then the leak is probably between the meter and the house, or it is behaviour. Leave the shutoff valve at the meter open and close the valve (if you have one) where it goes into the house. If the meter still runs then it is somewhere along the pipe. If the pipe is easily accessible (i.e. not buried under paving etc.) then by opening up every few metres you will eventually find the leak. If the pipe is inaccessible at that point it is often cheaper to lay a completely new pipe than trying to find a leak.
 - d. If you close off and the meter does not run, then it is probably behavioural. Monitor the meter every day at the same time, and if there is a spike in the daily reading, investigate. A hosepipe left on all day has been known to cause a 10 m³ jump in readings.

and find the leak. The recommendation from the plumber was to replace the entire pipe from the meter to the house – a distance of over 40 m. The cost was so high that he balked at this.

However, when the author was at the house he noticed what appeared to be an overflow pipe continually running; according to this colleague, the plumber was unable to trace where it was coming from. It took five seconds to work out it was the overflow from an old-fashioned toilet, and fix it. Thus armed with the knowledge to trace leaks the colleague was also able to pinpoint a second leak outside the kitchen door. In the end the result was a much reduced water bill without the need to replace the entire pipe.

The fifth example is a complex comprising 60 units in Montgomery Park, Johannesburg. The author was approached after the monthly bill in the complex went from R33 000 per month (R550 per household) to R96 000 per month (R1 600 per household). Here it was clear that the reticulation was rotten, as the unmetered fire reticulation (non-revenue water to Johannesburg Water) had already required extensive repairs.

One year later neither Johannesburg Water nor the complex had taken any action, resulting in major losses for both of them. Given the demographics in the complex, a monthly bill of R5 000 per month would have been reasonable, meaning that the complex over the past 12 months had paid out over R1 million for water that had passed through its meter, but that had not been used for any constructive purpose whatsoever.

Lessons drawn

A number of lessons can be drawn from this last example.

Firstly, if the households in the complex were happy to pay R550 per month, then increasing tariffs to reflect the true cost of supplying water should not be difficult if it is matched with a reduced consumption (i.e. the monthly bill remains the same). Once consumers

understand what a reasonable consumption is and how they can trace leaks themselves, it will empower them in their dealings with the municipality and plumbers. From the municipality's point of view, empowered consumers will assist them in providing an efficient and effective service.

Secondly, in order to reduce abstraction from the resource, both non-revenue (the fire reticulation) and revenue water (the domestic reticulation) need to be targeted. In the case of the Vaal River System a 15% reduction is the target and it can be concluded, from all the above examples, that this can easily be achieved.

Thirdly, a more proactive approach needs to be taken by the water service providers in helping consumers fix the leaks. The problem in the complex was that the rules governing the Body Corporate did not allow them to borrow the money to fix the problem. However, if a special tariff could be introduced by Johannesburg Water for the period it takes to pay back the cost of fixing the problem (in the above case combining both the fire and domestic reticulation into a single reticulation with individual household metering) then everyone would gain.

However, all the other examples show that, at a household level, once the household was aware of how to resolve the problem it was relatively easy to

fix, either themselves or with their municipality. The primary driver in all cases was money. So, for behaviour change to happen, municipalities must accurately bill their consumers on a monthly basis, enforce credit control and, if possible, notify the consumer when consumption patterns change.

How many more R6 000 braais must South Africans have before they can enjoy the meat?

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