WATER AND SOCIETY

Water reuse – what does the public know?

Water reuse is one of the strategies proposed in South Africa's recent policy documents to stretch the country's scarce water resources, but what does the public know about it? And do they support it? Jorisna Bonthuys reports on the latest research supported by the Water Research Commission (WRC).

With a fast-growing population, recurring droughts and water risks due to climate change, it has become critical to plan for the increasing demand for freshwater.

Climate change prediction models suggest that average temperatures will rise, and rainfall events will become more infrequent, but also more intense, thereby increasing the unpredictability of water availability. Not only the likelihood, but also the severity of extreme climate events are expected to increase in the near future.

Events like the recent multi-year drought are becoming the 'new normal' in southern Africa due to unfolding climate change. Many of South Africa's municipalities would be at risk if there were to be a serious multi-year drought.

Water reuse is considered one of the ways that South Africa can avoid a projected 17% water deficit by 2030. Currently, it is one of the strategies proposed in the National Water Resource Strategy 2 and the National Water and Sanitation Master Plan. But what, if anything, does the public know about using water more than once? And, do they support it?

A recent report titled, ***Water reuse – what does the public know*** (**WRC Report no. TT 807/19**), discusses this topic. The report highlights the findings of the baseline assessment of public knowledge of water reuse and related aspects, which was undertaken in 2019.

The study, funded by the WRC, has provided valuable insights for water managers and policymakers alike. The research was

undertaken by Dr Sarah Slabbert and Nadja Green from BHI 32, a development communication and research consultancy based in Johannesburg. This is the first study of its kind to test the South African public's awareness and understanding of water reuse and related aspects. The survey also determined which actions people are likely to support in a severe drought situation.

The report discusses the findings of a national survey, which was conducted as part of the OMNIBUS syndicated survey of Nielsen South Africa. The survey covered adults, aged 15 years and over, from all race groups. The sample included 2 519 urban respondents and 800 rural respondents. Personal at-home interviews were conducted in English.

The questionnaire comprised two grid-style questions and one closed pre-coded question. The questionnaire was designed to cover knowledge that was identified in the literature review and the stakeholder consultations as essential for the public to have. This includes the following aspects:

- Knowledge of terminology such as 'wastewater', 'treatment', 'greywater' and 'potable water'
- Knowledge of the water cycle
- Knowledge of water and wastewater treatment and municipal responsibilities in this regard
- Knowledge of ***de facto*** water reuse
- Knowledge of safety aspects of water reuse
- Common myths and misconceptions
- Knowledge of the effect of climate change on the availability of water
- Knowledge of South Africa as a water-scarce country

Public knowledge of water reuse and related aspects was tested with the closed question on greywater and 18 statements, which respondents had to mark as true, false or not sure. The composite result was presented as an index score out of 20 (with 0 being the lowest and 20 the highest score). The second grid-style question asked respondents which actions they would support in the event of a severe drought in a city like Johannesburg. Respondents could select multiple responses from eight options.

Only 35% of South Africans interviewed knew that greywater is the term for wastewater from bathing, washing clothes and dishes.

Unpacking the results

"On average, South Africans scored 12 out of 20 (on the index score)," Slabbert points out. "Since the questions tested very basic knowledge, one would expect at least an average score of 14 out of 20 from an educated public. This means that, on average, South Africans have insufficient knowledge of water reuse and related aspects."

There were some demographic differences in the public's knowledge of water reuse and related aspects, but these differences were small.

Even for the highest LSM groups (LSM 8-10) and for people with a post-Grade 12 qualification, the average scores were 13,05 and 12,65 respectively. This implies that a public education campaign on water reuse should target all demographic groups, according to the report.

Three sub-indices were also calculated. On these sub-indices, South Africans scored as follows:

- 1,32 out of 3 for knowledge of the water cycle. "The low percentage of correct answers for the three statements on the water cycle indicates that South Africans' knowledge of the water cycle is particularly poor," Slabbert says. From the pilots it was clear that respondents interpreted messages of water scarcity, and even climate change, as indicative that the Earth's water is becoming less.
- 1,81 out of 3 for knowledge of safety aspects of water reuse. On some aspects, knowledge was good (75% or more); on other, knowledge was poor.
- 4,58 out of 6 for knowledge of water and wastewater treatment. "This result shows that respondents have applied the explanation that they got in the showcard," Slabbert says.

Spotlight on terminology

The survey further found that South Africans across all demographic groups have poor knowledge and understanding of the basic terminology that is needed for a meaningful public discourse on water reuse.

Knowledge of terms like 'wastewater' and 'treated wastewater' was so poor that these terms had to be explained upfront in a showcard before respondents could be asked any questions. Slabbert contributes this to a lack of a comprehensive water curriculum, starting at the primary school level. "There is no systemic build-up of knowledge (about water-related issues) in our country. Often, learners finish school without a basic understanding of water-related issues and terminology," she maintains.

Greywater reuse is a common practice in South Africa. Yet, only 35% of South Africans know that greywater is the term for wastewater from bathing, washing clothes and dishes. People in the higher LSM and education groups are more familiar with the term, but not more than 50% of people in these groups know the term.

In the Metros, 41,2% of people know the term greywater; in other urban areas, 34,1% of people know the term. Only 28,2% of the rural population know that wastewater from bathing,

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The vast majority of survey respondents (90%) know that is not safe for children to play in untreated wastewater.

washing clothes and dishes is called greywater. Differences were statistically significant.

One in every five South Africans (80,9% of respondents) indicated that they would support at least one of the water reuse actions (greywater reuse, industrial recycling, direct potable reuse) in a severe drought.

The Coloured, Indian and White populations had the highest correct scores for familiarity with the term greywater (46,6%, 48,5% and 51,6% respectively). The Black population scored significantly lower (31,6% correct answers), but it is likely that especially rural respondents were not familiar with the English term 'greywater'. This emphasises the need for a common term that all South Africans can understand and relate to, the researchers point out.

The term 'potable water' is widely used by policymakers and water scientists, but only 28,3% of South Africans know what this term means. As with the finding for greywater, the percentage of people who are familiar with the term potable water (water that is safe to drink) is higher for the higher LSM groups, but not more than 33,6% of people in these groups know the term.

Contrary to the result for greywater, people from other urban areas are more familiar with the term 'potable' than people from the Metros (31,6% versus 27,8%). The difference was not statistically significant. Rural people got the lowest number of correct answers, namely 26,4%.

Many uncertainties about water reuse

The survey results showed that South Africans are unsure of many aspects of water reuse. South Africans seem to be unsure of the realities of using water more than once. Only 50,5% of people marked the statement that treated wastewater gets mixed with rainwater in rivers and that municipalities reuse this water as drinking water after treating it as 'true'.

Two out of every three people (66,5%) know that the municipal tap water in the kitchen is the same as the water that is in the toilet's water tank. The rest think that the water is not the same or they are unsure of the answer.

Almost half of South Africans (47,6%) believe that water should be free because it comes from the rain. Many South Africans (31,5%) still don't know that seawater can be treated to the drinking water standard.

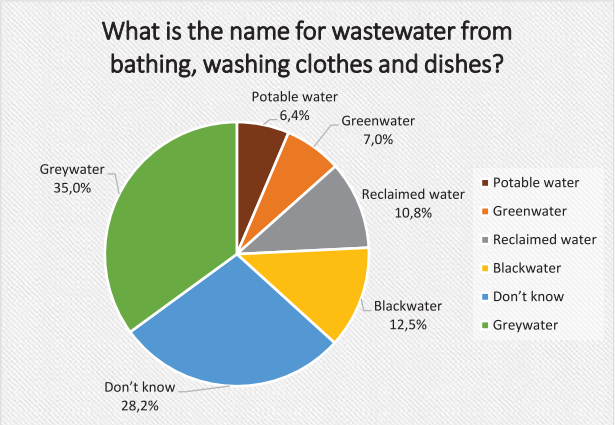
Knowledge of the safety of water reuse also varied. The safe use of greywater got low scores: 46,1% correct responses for the false statement: ***It is safe to eat vegetables from plants that were watered with wastewater from bathing, washing clothes and dishes***. Most people (90%) know that is not safe for children to play in untreated wastewater; on the other hand, only 44,7% know that it is unsafe for cattle to drink untreated wastewater.

The statement about climate change's effect on the availability of water had 78.6% correct answers. Slabbert points out: "Climate change is consistently in the news; this could have attributed to the high score." On the other hand, 68,7% (that is 10% less) of people think that it is true that South Africa has water scarcity problems. In stakeholder interviews that the research team conducted, it was mentioned that it is difficult to convince urban consumers, in particular, of water scarcity when they have water in their taps.

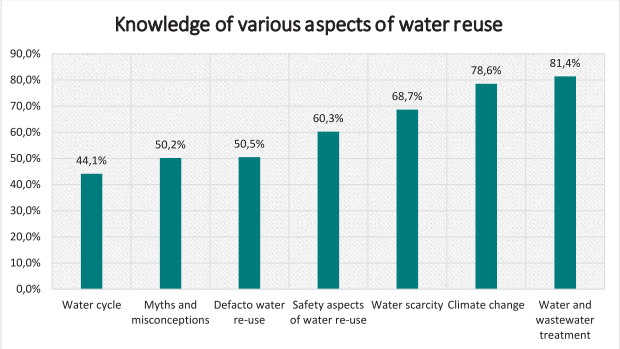
Water reuse in a severe drought

The survey indicated that South Africans would support water reuse in a severe drought situation, including direct potable reuse. Almost one in every two respondents (48,5%) mentioned direct potable reuse as something that they will support. As expected, the support for direct potable re-use was lower than the support for industrial and greywater reuse, but the difference was less than 10%.

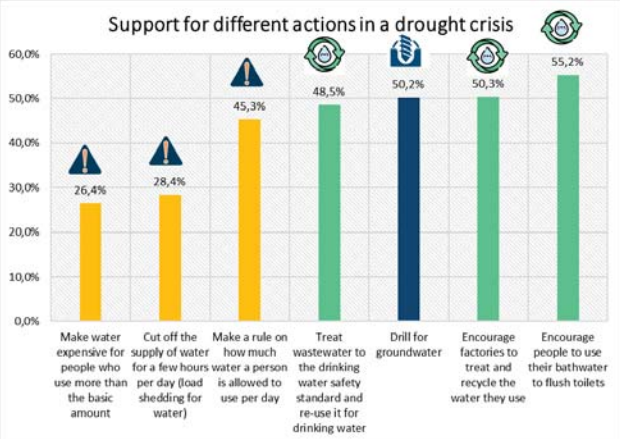
People from urban areas showed slightly more support for direct potable reuse of water than those from rural areas. People from higher LSM groups showed more support for the direct potable reuse of water (53.8% for LSM groups 8-10 compared to 42,5% for LSM groups 1-4). 54,6% of people with a post-Grade 12

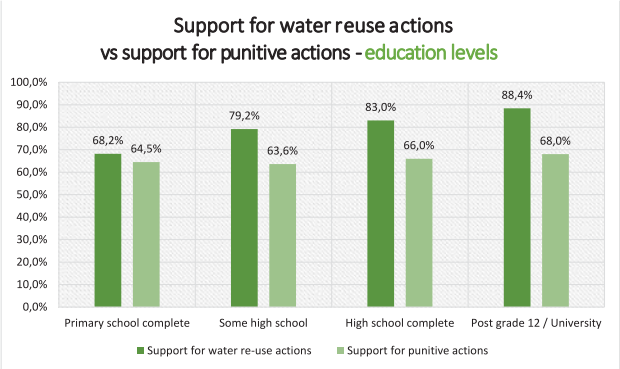


Survey respondents' familiarity with the term 'greywater'.



Respondents' knowledge of various aspects of water reuse.



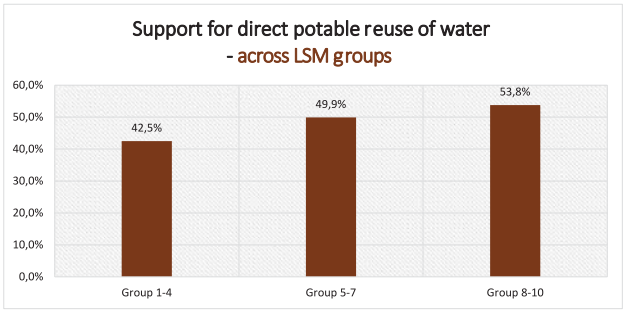


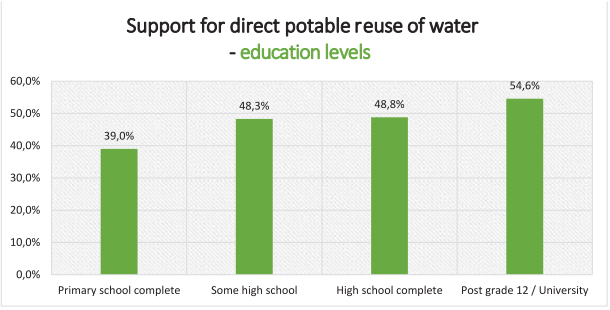
qualification support direct potable reuse in a severe drought, significantly more than people with only primary education (39%). This is a very important finding, Slabbert believes.

One in every five South Africans (80,9% of respondents) indicated that they would support at least one of the water reuse actions (greywater reuse, industrial recycling, direct potable reuse) in a severe drought. In contrast, only 65,4% indicated that they would support at least one punitive action (high tariffs and penalties for people who use more than the basic quantity, load shedding for water, restricting water use to a specified quantity per day). The action 'drill for groundwater' was supported by 50,2% of South Africans.

Moving forward

The study confirmed the predictions of stakeholders interviewed that there are serious gaps in the public's knowledge of various aspects of water reuse and related aspects.





Key knowledge areas that will have to be addressed are the terminology of water and wastewater, the water cycle and the safety aspects of domestic water reuse. In this regard, it is important to find common terminology that citizens are familiar with. "However, it would be dangerous to encourage domestic water reuse without the public being informed about its safety aspects," says Slabbert.

In the survey, knowledge of water reuse and related aspects correlates positively with support for water reuse. Although the correlation is weak, these findings support the conclusions of the literature. "One can, therefore, expect that improved public knowledge will have a positive outcome," says Slabbert.
The research results will now inform the development of a communication strategy for a sustainable public education programme on water reuse. "This proposed strategy will lay the foundation of public knowledge and understanding of water reuse," Slabbert indicates. "Implementing organisations can use this to inform their communication campaigns."