RURAL WATER SUPPLY

Research project paints sober picture of rural water services

The Water Research Commission (WRC) co-hosted a webinar in April on rural water supply in South Africa, reviewing progress in service delivery and the challenges faced. Article by Sue Matthews.

Luke Romick/WMO

Last year, in an article titled 'Water and Sanitation Services – how are we doing?' in the September/October issue of ***The Water Wheel*** (see here https://bit.ly/4jRf1kE) I gave an overview of key findings from Census 2022, the General Household Survey 2023 and the most recent Non-financial Census of Municipalities, as detailed in publications by Statistics South Africa (StatsSA).

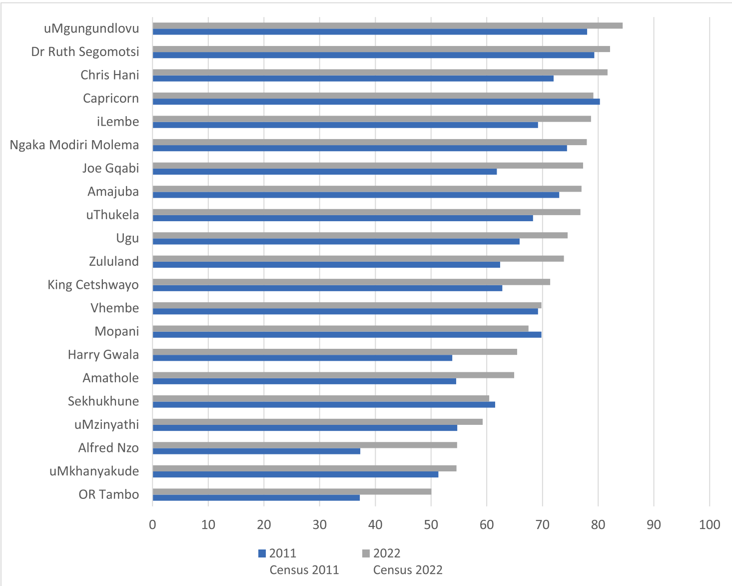
At that stage, I wasn't aware that a team from Partners In Development (PID) engineering consultancy were doing a much deeper dive into StatsSA and other data for a multi-year WRC-funded project focusing on rural water supply and sanitation services. Project leader and PID director David Still presented the findings in a webinar on 2 April, revealing the stark reality that – at the current rate and cost of backlog eradication – it will take another 20 years and more than R186 billion before all rural inhabitants have a piped water supply within 200 m of their dwelling.

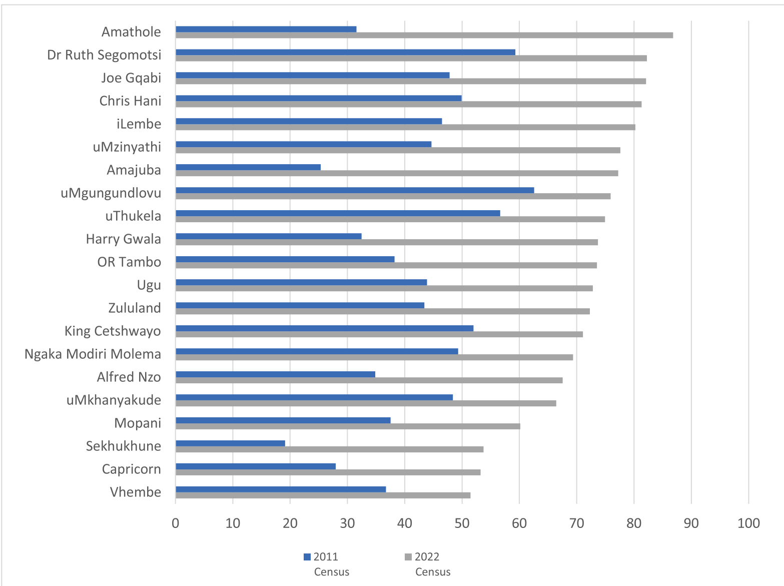
Back in 2003, the then Department of Water Affairs and Forestry published targets in its Strategic Framework for Water Services for all people in South Africa to have access to functioning facilities for basic water supply by 2008 and basic sanitation by 2010. Admittedly, in his preface to that document, Minister Ronnie Kasrils wrote: "The targets we have set for ourselves are aspirational. The targets for access to water supply and sanitation services exceed those set out in the Millennium Development Goals. To meet them will require a concerted and collaborative effort on the part of all roleplayers."

Still remarked that those working at the coalface of rural water supply at the time certainly felt that the targets were overly ambitious, but there was good progress initially. According to Department of Water and Sanitation (DWS) data, only 44.4% of people in rural communities had access to a piped water supply within 200 m of their dwelling in 1994, and this had increased to 67% by 2011.

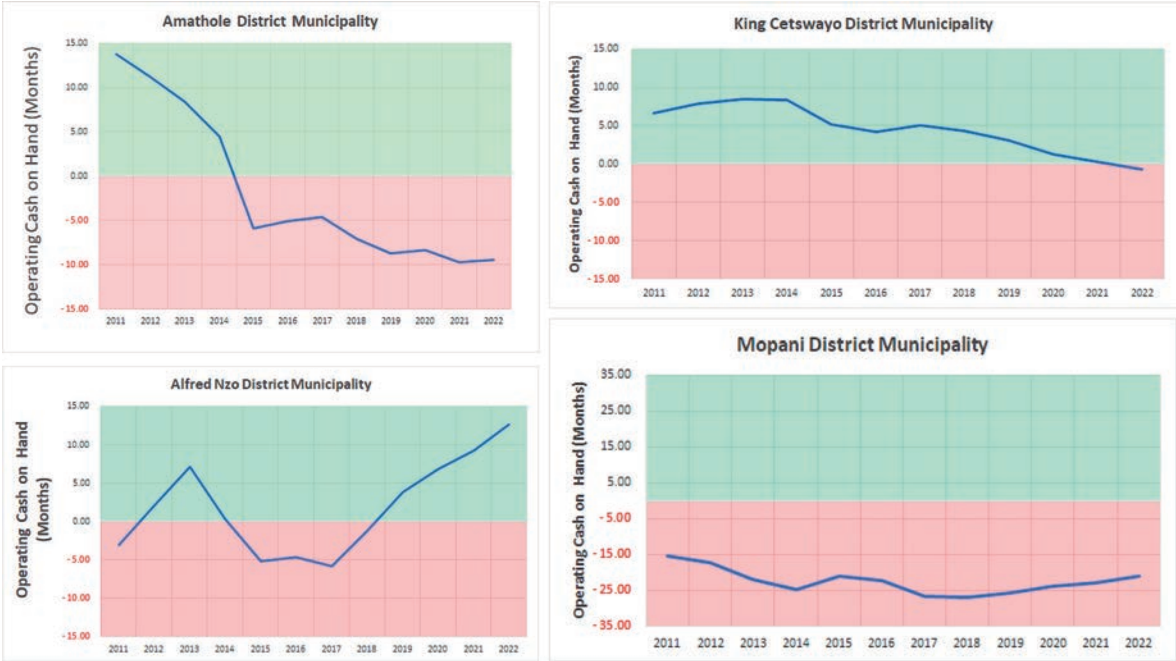
"I think there were some quick wins in the early years, but in more recent times it's getting harder to push that envelope," he said, pointing out that those still unserved live in communities more difficult to serve – apart from the fact that increasingly more money will have to be spent on maintaining existing infrastructure. The current low expenditure on maintenance can be seen as a time bomb for service reliability, suggesting longer and more frequent water outages in rural areas in the years to come.

The project focused on the period 2002 to 2022 and was confined to district municipalities that are also water service authorities. There are 21 of these so-called C2 district municipalities countrywide, with 10 in KwaZulu-Natal, five in the Easten Cape, four in Limpopo and two in North West. Together they serve over 17 million people according to Census 2022 data, which amounts to 28% of South Africa's total population and 65% of the rural population. Still noted that not all of those 17 million people are rural inhabitants because the districts do include some towns, but they are far more rural than urban. Vhembe DM in Limpopo has the largest population, with some 1.65 million people, and Amajuba DM in KwaZulu-Natal the smallest, with just under 180 000 people. The median population for all 21 C2 districts is 782 000.





The percentage of households with access to water within 200 m of the dwelling (top) and with improved sanitation (bottom) in 2011 and 2022 according to Census data.



Operating Cash on Hand (OCoH) for four C2 municipalities during the period 2011 to 2022. While Alfred Nzo DM had more than a year's worth of OCoH by 2022, Mopani DM was effectively using that year's income to pay costs from two years previously.

More importantly, the C2 districts vary vastly in size, from Dr Ruth Segomotsi Mompati DM in North West at over 43 700 km^2 to iLembe DM in KwaZulu-Natal at just 3 270 km^2, with the median being 13 527 km^2. In comparison, the metropolitan municipalities serving Johannesburg, Cape Town and Durban (eThekwini) cover 1 645 km^2, 2 446 km^2 and 2 556 km^2 respectively. Of course, those three metros have considerably larger populations – each over 4 million according to the 2022 Census – but they don't have the district municipalities' logistical challenges of remote areas with poor roads.

District municipalities came into being with the municipal elections of 5 December 2000, but it took several years before their roles and responsibilities were resolved with the local municipalities within their borders, as well as other roleplayers such as water boards and DWS. So although a Census was carried out by StatsSA in 2001, the project team used the 2011 Census as the baseline for measuring progress in service delivery, comparing data on access to water supply and basic sanitation to that from Census 2022.

This revealed that the median of household access to piped water within 200 m of the dwelling in the C2 districts increased from 65.9% in 2011 to 73.8% in 2022. The lowest access, at only 50%, was in OR Tambo DM in the Eastern Cape, closely followed by uMkhanyakude DM in KwaZulu-Natal, where access had increased only marginally. In fact, the percentage access had declined in three of the districts because the population had increased faster than delivery of water services!

In the case of sanitation, the C2 median for households with access to 'improved sanitation' – in other words, a flush toilet connected to a public sewerage system, septic tank or conservancy tank, or a pit toilet with a ventilation pipe, known as a Ventilated Improved Pit (VIP) – had increased from 43.9% to 73.5%.

"These rural districts have been building hundreds of thousands of VIP toilets, so there's been quite significant progress there," said Still. "But the four in Limpopo – Mopani, Sekhukhune, Capricorn and Vhembe – seemed to be quite far behind."

Turning to Blue Drop and Green Drop scores, for which monitoring resumed in 2021 after being halted in 2013, Still mentioned that many people think these are a measure of the quality of water supply or final effluent.

"Quality is only part of it. Much of it is how organised are you, how well qualified are your operators, do you have the right kind of planning documents in place – a lot of it is about administrative compliance," he explained. "For Blue Drop, the median for the C2s is 55%, which puts them on the bottom end of what Blue Drop calls 'average', and for Green Drop it's 38%, which is considered 'very poor'. Only 15% of your Green Drop score is the quality of your effluent – 85% is to do with compliance issues. So if you have a 38% score, you don't know exactly how good or bad the effluent is, but the general principle is that if you're administratively not well organised, chances are your effluent is probably not so good either. The Green Drop score also does not tell you what percentage of your sewage actually reaches the treatment plant."

The star performers in the top two positions of both the Blue Drop and Green Drop scores were uMgungundlovu DM and iLembe DM, both in KwaZulu-Natal. In the project's summary report, it is noted that the uMngeni-uThukela Water (previously Umgeni Water) supplies most of the bulk water for these two districts, which considerably reduces their workload and provides them with a reliable supply of good quality water. Likewise, a perusal of the Green Drop National Report reveals that all of uMgungundlovu's six wastewater treatment works (WWTW) are operated by uMngeni-uThukela Water. All performed well, with scores above 80%, and one was awarded

Green Drop Certification, resulting in uMgungundlovu being named the best performing municipality in KwaZulu-Natal. Siza Water operates two of iLembe's 12 WWTW, and both achieved Green Drop Certification, which pulled up the municipality's overall score. These were the only Green Drop Certificates awarded in the province, which has 147 WWTW in total.

Still drove home the point that the C2 districts contain a large number of treatment plants, whether for potable water or wastewater, and they are spread over an extensive area. While some may be operated by a service provider, many are not. "Amathole is operating 30 of its own water treatment plants, and another seven of its treatment plants are operated by Amatola Water, the water board. OR Tambo is operating 20 and Chris Hani is operating 22. That's pretty challenging! So these municipalities have got their work cut out for them."

Apart from evaluating the C2 municipalities' performance with respect to service delivery, the project team assessed their financial health by reviewing their audited financial statements, available from National Treasury, for the period 2011 to 2022.

"All of them show a profit every year, and all of them have a positive net asset value, which is just your assets minus your liabilities. If you have a positive net asset value, it means you are solvent in theory," said Still. "But there's a problem with that because for municipalities most of the asset value is actually the value of the infrastructure they own, in the form of property, plants and equipment. If you subtract the infrastructure from the net asset value, you actually get negatives with quite a few municipalities – in other words, the net asset value excluding property, plants and equipment for at least half of them is negative, which means technically they're not solvent."

How does one gauge the true financial health of a municipality then? Still showed the performance of a few of them over the years according to the liquidity ratios used by National Treasury – the current ratio and cash ratio. Current ratio is essentially current assets divided by current liabilities, while cash ratio is cash and cash equivalents divided by current liabilities. He noted that current assets include money that is owed, which means it can be skewed by creative accounting. In the case of Joe Gquabi DM, the 'consumer receivables' had ballooned from 25 million in 2015 to over R467 million by 2022. As Still remarked, they're never going to see it.

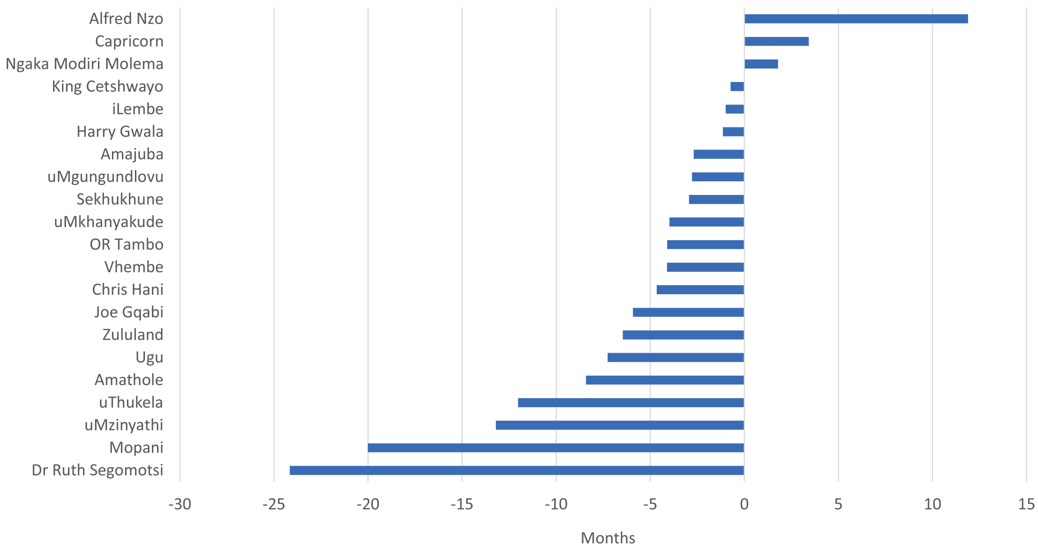
"So a better indicator is operating cash on hand, which we've called in our report OCoH, measured in months. Basically, it's a measure of how long you can continue operating even if you have no more income. Without income, how long can you coast before you're broke. You take your cash and your cash equivalents divided by your annual operating cost, times by 12. How many months can you survive? And obviously for a healthy organisation, you'd want to have several months of cash in the bank – at least a year would be great – but not negative."

Still then showed OCoH timelines for the period 2011 to 2022 for four of the C2 municipalities, with very different trajectories, as well as a graphic for all 21 depicting OCoH as of June 2022.

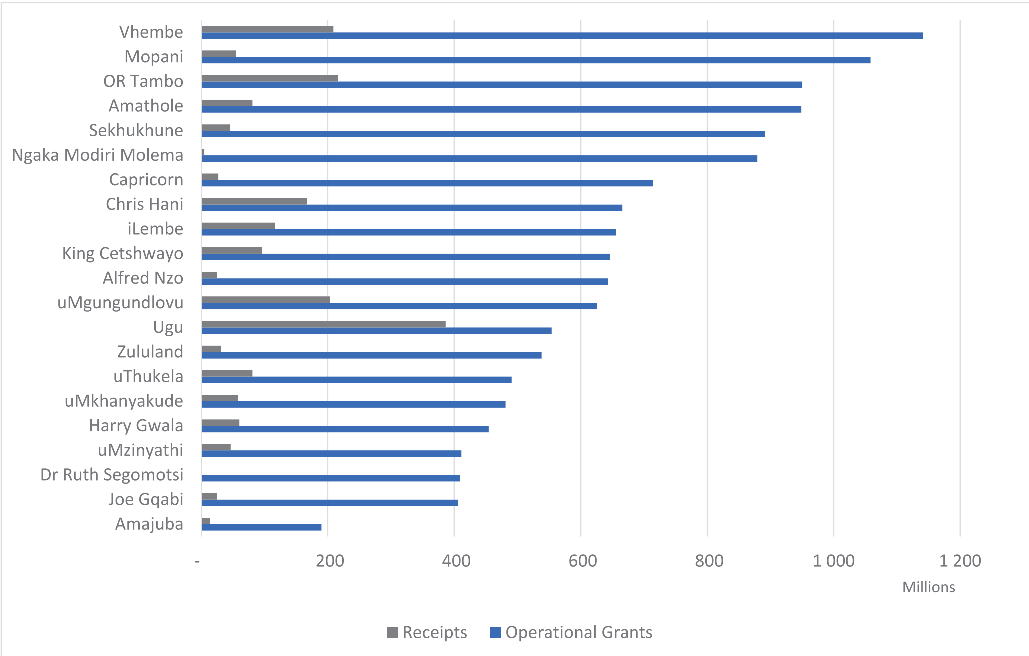
"Most of them are negative, down to Dr Ruth Segomotsi Mompati and Mopani, which are really catastrophically negative. And the median is minus 4.2 months. That's not a good situation. It means your service providers are going to be a bit scared to do business with you. They're not going to take a lot on trust, so that's not healthy."

One consequence of running at a loss is that municipalities stop paying the water boards, which is why some of the country's water boards are in financial trouble – or have already been liquidated in the case of Sedibeng Water, owed R600 million by Ngaka Modiri Molema DM. Alarmingly, municipal debt to water boards has grown from R8 billion in 2018 to R22 billion in 2024!

Another thing that municipalities stop doing is maintenance. Still noted that information was not easy to find because municipalities report on maintenance in their financials in different ways, but the project team's analysis found that maintenance expenditure as a percentage of the book value of property, plant and equipment for the period 2011 to 2022



In 2022, only three of the 21 C2 district municipalities had Operating Cash on Hand, and the median was minus 4.2 months.2022, Mopani DM was effectively using that year's income to pay costs from two years previously.



Operations grants versus receipts for services for 2022. Still pointed out that given this imbalance, it is not surprising that C2 municipalities are more incentivised to please National Treasury and comply with the Municipal Finance Management Act than they are to deliver services to the people.

averaged 1.2%, with a median of 0.6%. The Treasury guideline is 8%.

A possible solution to improve the municipalities' financial health might be to increase their operations grants, but those receiving higher grants to date are not necessarily financially stronger. And what about income from service delivery, where the collection rate is only 60%? Still remarked that the free basic water policy has led to widespread misunderstanding that all water services are free.

"The operations grants are 10 times more than what's collected for service charges, so for the 21 C2 municipalities, 90% of their income on average comes from operations grants. What they get from service delivery is quite a small share of that. So even if they got their collection rate up to 80–90%, it wouldn't make that much difference to their overall income."

Currently, much of the municipalities' money is going to their own staff. The project team found that they are typically spending 45% of total income from operations grants and service charges on salaries, and the median average staff cost in 2022 was R524 000, which would be 15% higher today. But even reducing the wage bill would probably not be enough to make the municipalities financially sustainable. The project team conducted a modelling exercise on what it should cost to operate and maintain the infrastructure the municipalities have, with a key input being the current replacement cost of infrastructure. The median modelled replacement cost of infrastructure was found to be R13.4 billion at 2024 values.

"For our 21 district municipalities, 16 of them are operating with less cash than they need to actually run these systems, and only five have got just enough. Most of them are working on about 70% of what they need, and you could argue that we may have underestimated the cost," said Still. He suggested that rather than building expensive infrastructure in places where there's very little money to sustain it, simpler technology should be adopted where possible. "We need to use modular, standardised and decentralised technology. The large regional schemes have been getting bigger and bigger, but they're very complicated, and if one thing goes wrong, then nobody gets water."

He stressed the need to increase expenditure on maintenance, recommending that the existing policy be changed to ensure that at least 50% of capital grants is spent on capital maintenance. Supply chain management practices also need to be reformed and the Municipal Finance Management Act amended to facilitate service delivery, rather than obstructing it.

At the district level, much can be done to improve cost efficiency and effectiveness. "If the municipality is failing, change the management team. We found a few examples where just overhauling the management team led to a turnaround in how things are going." He also recommended that municipalities get much tougher on consumers who do not pay for services. "There's got to be a change in South Africa on people not paying their bills. It's just not sustainable."

Still's presentation was very well received by the attendees, and a long Q&A session followed. In closing the webinar, WRC Executive Manager Jay Bhagwan, who oversaw the project, said that other platforms would be found to continue this dialogue and share the information and knowledge, with the aim of stimulating the discussion towards solutions.

"I think we are at a space in the sector where the winds of change are blowing quite strongly, and we should voice our views and our suggestions," he concluded.