



AFRIFORUM BRANCH PROJECT REPORT

BLUE AND GREEN DROP PROJECT

2019



by

Lambert de Klerk

This document forms part of AfriForum's blue and green drop campaign, a project of AfriForum's #CleanWater initiative and launched by

AfriForum Community Affairs

July 2019

A WORD OF THANKS

It is a privilege to work with people who share a passion for their people, the community and the environment in which we live. Thank you to AfriForum staff and all the AfriForum branches across South Africa who have made this project possible.

A special word of thanks to every member of AfriForum for your sustained participation in this national project driven by AfriForum every year and for sharing with us your vision of sustainable development and responsible water management in South Africa.

Thank you also to those municipalities who are taking the lead in South Africa and who are performing their work in an irreproachable way by ensuring that water is managed responsibly, and by doing this they ensure that applicable legislation for water management is complied with. These municipalities should be rewarded because they are protecting their communities and the environment against pollution and health hazards.



AfriForum's Secunda branch conducting water tests during AfriForum's blue and green drop project in 2019. Pictured here is Jan du Plessis.

TABLE OF CONTENTS

PAGE

| | |
|----------------|----|
| Introduction | 6 |
| The facts | 8 |
| The project | 9 |
| Results | 10 |
| Blue drop | 11 |
| Green drop | 21 |
| Plan of action | 38 |
| Summary | 39 |

GRAPHS

| | |
|--|----|
| Graph 1: Blue drop (drinking water) results – 2013-2019 | 11 |
| Graph 2: Green drop (sewage) results – 2013-2019 | 21 |
| Graph 3: Number of sewage treatment works not complying with sewage requirements | 22 |
| Graph 4: Green drop (sewage) results by province | 22 |
| Graph 5: Green drop (sewage) results of Gauteng | 25 |

INTRODUCTION

South Africa has been classified as a water scarce country, and this is why solutions need to be found to address the extraordinary challenges with regard to the sustainable management of fresh water resources. The country is experiencing increasing pressure on the demand for and supply of clean drinking water. Growing pressure on existing infrastructure for drinking water and sewage is contributing to the country's threatening crisis in this regard, and furthermore the country's water resources are not being upgraded, such as by building new and larger dams.

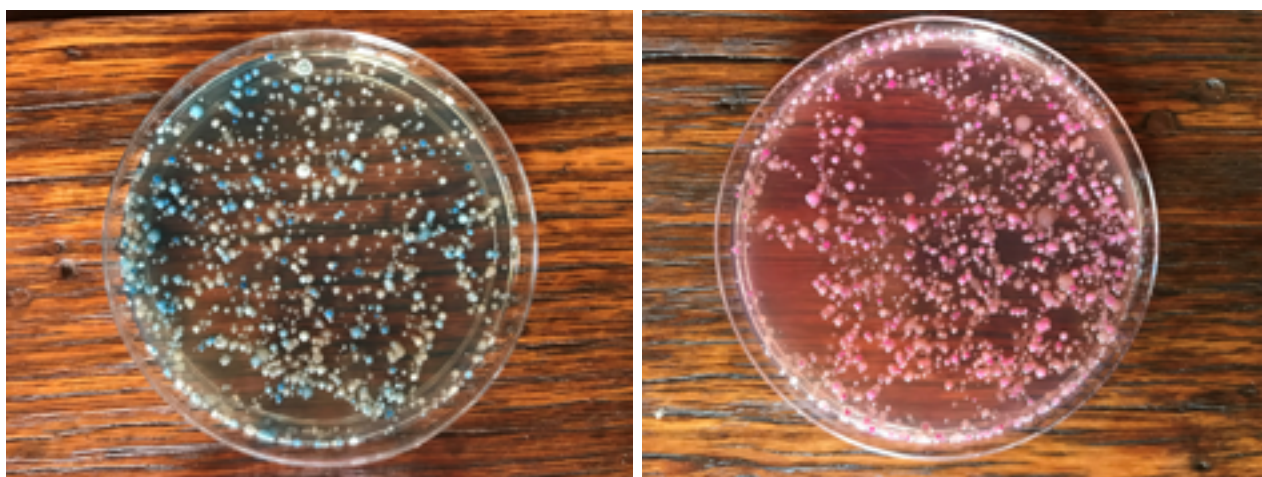
AfriForum has been enabling communities to protect themselves against poor service delivery by the state, particularly regarding the supply of water. Several AfriForum branches have already established emergency water points where clean drinking water is made available at private sources, or municipal boreholes are repaired during crisis situations to improve water supply. Expenses that had to be incurred by the community to supply water themselves because of inadequate or no municipal water supply services are claimed back from the municipality in question.

AfriForum remains committed to research on and striving to reach independent solutions and privatisation of water

systems under the aegis of the state (as custodian of the country's water resources). For this civil rights organisation it is an increasingly important function to find solutions to the demand for water.

AfriForum launched the #CleanWater initiative as far back as February 2013. This yearly report is compiled with the aim of providing the public with reliable information concerning South Africa's water quality regarding drinking water and sewage. The project is aimed at positive change in the management of drinking water and treated sewage across South Africa, and also at holding the specific officials accountable.

According to the World Health Organisation, approximately 4 million people – most of them younger than five years – every year die of diseases that can be ascribed directly to polluted water. This amounts to more than 330 000 people per month or 10 000 people per day; 400 people per hour or seven people every minute ... or one person every eight seconds.



Blue and red agar in petri dishes clearly showing the presence of *E. coli* and faecal coliform bacteria in the 2019 water tests.



South Africa is not unique in the water challenges facing us. The water shortage is forcing us as consumers to think anew about water and how we are using it. The Western Cape specifically was forced to think deeply with water restrictions of 50 litres per capita per day (ℓ/c/d) in 2018. Global average water consumption is 180 ℓ/c/d, compared with South Africa's average of 235 ℓ/c/d according to the Department of Water and Sanitation (DWS).¹

South Africa will have to change its way with regard to water usage. Research has to be conducted to find techniques and methods to use water for multiple purposes. This means the same litre of water that is made available to consumers at drinking-water quality should not be used once only and then flushed away – it should have an appropriate second and third function.

Community members collecting water at one of Cape Town's springs near Table Mountain in 2018.



Members of AfriForum's Vereeniging branch visiting a sewage plant discharge pipe.

¹ BENCHMARKING OF WATER LOSS, WATER USE EFFICIENCY AND NONREVENUE WATER IN SOUTH AFRICAN MUNICIPALITIES (2004/05 to 2015/16); bl. iii tot iv Internet 28 Augustus 2018 <https://africacheck.org/wp-content/uploads/2018/04/National-benchmark-2017-09-12-final.pdf>

THE FACTS

The South African Constitution, in section 24, provides for an environment that is not harmful to the health or well-being of people. It aims at conserving the environment for present and future generations and at preventing pollution and ecological degradation. It is also aimed at enhancing environmental conservation and ensuring ecologically sustainable development.

Section 27(1)(b) stipulates that everyone has the right to access to sufficient water and that this right is to be enhanced progressively.

In terms of section 156 and Part B of Schedule 4 to the Constitution, municipalities have executive authority over and the right to administer water and sanitation services.

This right is limited to potable water supply systems and local waste-water and sewage disposal systems. The DWS is responsible for managing and developing water supply and water resources.

The DWS issued the last official Blue and Green Drop Report in 2012. AfriForum therefore decided to act as civil rights watchdog to ensure the quality of drinking water and treated sewage in South Africa.



THE PROJECT

AfriForum recognises the importance of water quality for human consumption and the role it plays in the ecosystem. This is why the #CleanWater initiative was launched in 2013, to test drinking water and sewage on an annual basis.

This year, AfriForum again succeeded in enabling more than 120 branches across South Africa to test their municipal drinking water and sewage as part of the 2019 blue and green drop project. Drinking water (blue drop) and treated sewage (green drop) were tested in May to June this year so communities could ascertain whether there are any health risks and whether drinking water and sewage comply with legal standards. They were accompanied by AfriForum's coordinators and several other interested parties, including municipal officials, the media and service providers. Participants were encouraged to take pictures as proof, enhancing the credibility of the study in this way.

AfriForum is using water test kits in collaboration with researchers of the University of the Free State and the company iWater, which conducts tests for the following pathogens and minerals in an easy and effective way:

- » *Escherichia coli* (*E. coli*)²
- » Faecal coliform bacteria
- » Nitrates³
- » Phosphates



AfriForum's test kit for testing water quality.

² In terms of SANS: 241 National Standards, there should be no *E. coli* in drinking water.

³ South African Water Quality Guidelines. Volume 1: Domestic Water Use, Second edition, 1996

RESULTS

Blue drop

During May and June 2019, AfriForum tested the quality of drinking water in 206 towns. Four municipalities did not meet the quality standards for drinking water. In 2018, AfriForum's blue and green drop project found that 14 of 199 drinking-water systems were supplying infected drinking water to communities. The watchdog function performed by organisations such as AfriForum by exercising pressure ensured that drinking water of most of these municipalities passed the test this year. Therefore, it is clear that the pressure AfriForum is exerting on municipalities every year is bearing fruit. Unfortunately, the drinking water of the Tswaing and Naledi local municipalities was infected once again, posing health risks to the communities in these municipalities for the second year running.

The results of drinking-water quality tests conducted from 2013 to 2018 are also contained in this report with a view to comparing them with the 2019 results.

The blue drop results indicate that three municipalities did not meet the minimum water quality standards.

1. *Brits* – Madibeng Local Municipality (Phosphates >50 ppm)
2. *Delareyville* – Tswaing Local Municipality (Phosphates >25 ppm / Nitrates >25 ppm)
3. *Sannieshof* – Tswaing Local Municipality (Phosphates >25 ppm)
4. *Stella* – Naledi Local Municipality (Nitrates >100 ppm)

AfriForum immediately warned the communities in question not to drink this water. The municipalities were put on terms to immediately address the poor water quality. Follow-up samples taken at least seven days after the initial tests indicate that the water now is fit for human consumption.

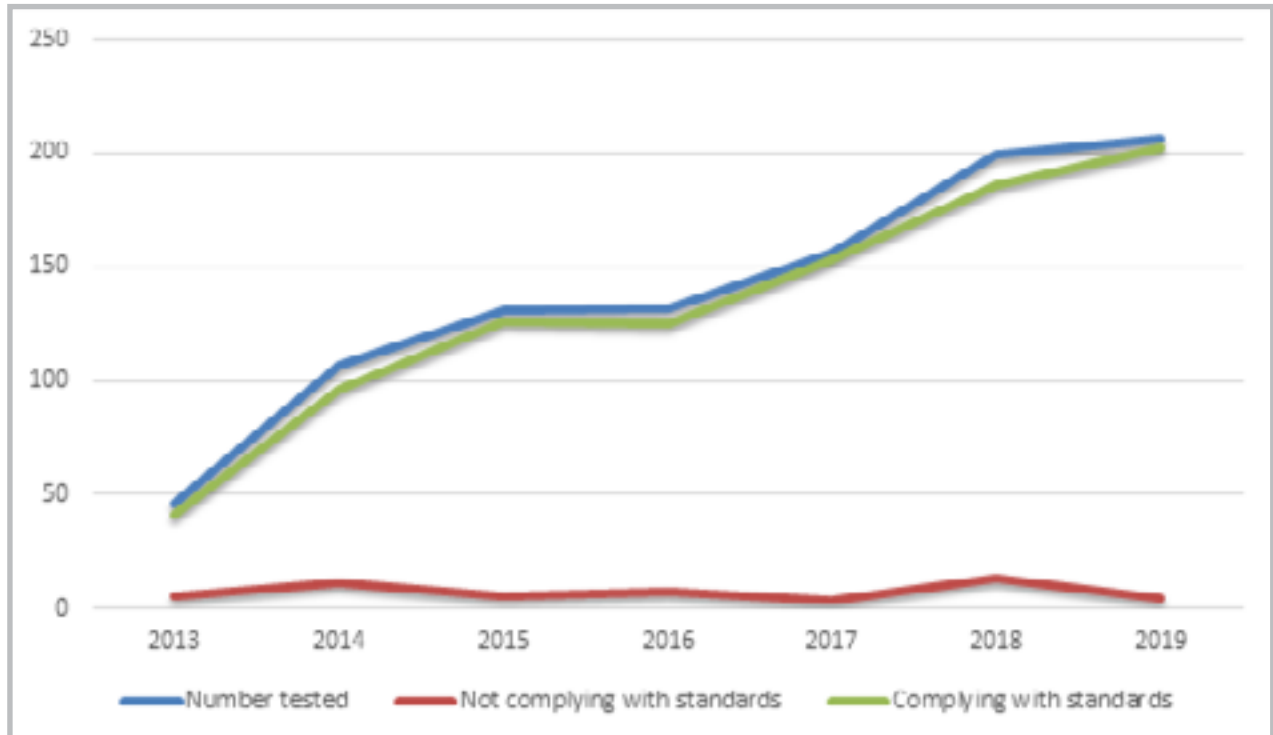


AfriForum taking water samples for inter alia *E. coli*. In the picture, Rudolph de Villiers is conducting a water test in the Moreleta Spruit during AfriForum's internship.



One of the tests conducted by AfriForum involves test strips to test phosphate levels in water.

The graph on this page shows the blue drop results for 2013 to 2019.



Graph 1: Blue drop (drinking water) results 2013—2019.

Blue drop results

The table below shows the areas where samples were taken and the results since the project was launched in 2013.

| GAUTENG | | | | | | | | |
|---------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Alberton (Randhart) | Ekurhuleni Metro | - | - | - | Clean | Clean | Clean | Clean |
| Apies River | Tshwane Metro | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Bedfordview | Ekurhuleni Metro | - | - | - | - | Clean | Clean | Clean |
| Benoni | Ekurhuleni Metro | - | - | - | Clean | Clean | Clean | Clean |
| Bedfordview | Johannesburg Metro | - | - | - | - | - | - | Clean |
| Boksburg | Ekurhuleni Metro | - | - | - | - | Clean | Clean | Clean |
| Brakpan | Ekurhuleni Metro | - | - | - | - | Clean | Clean | Clean |
| Bronkhorstspuit | Tshwane Metro | - | - | - | - | Clean | Clean | Clean |
| Centurion Central | Tshwane Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Centurion South | Tshwane Metro | - | - | - | - | - | Clean | Clean |
| Centurion West | Tshwane Metro | - | - | - | - | - | Clean | Clean |

GAUTENG

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|--------------------|------|-------|-------|---|-------|-------|-------|
| Cullinan | Tshwane Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Fochville | Merafong City LM | - | - | - | - | - | - | Clean |
| Florida | Johannesburg Metro | - | - | - | - | - | - | Clean |
| Edenvale | Ekurhuleni Metro | - | - | - | - | Clean | Clean | Clean |
| Elsburg | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Germiston | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Heidelberg | Lesedi LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Hennops River Valley | Tshwane Metro | - | - | - | Clean | Clean | Clean | Clean |
| Roodepoort | Johannesburg Metro | - | - | - | - | - | Clean | Clean |
| Kameeldrift | Tshwane Metro | - | - | - | - | Clean | Clean | Clean |
| Kempton Park | Ekurhuleni Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Krugerdrorp | Mogale City LM | - | - | - | - | - | Clean | Clean |
| Lochvaal | Emfuleni LM | - | Clean | Clean | Clean | - | - | Clean |
| Magaliesburg | Mogale City LM | - | Clean | Clean | - | - | Clean | Clean |
| Meyerspark | Tshwane Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Midvaal | Midvaal LM | - | - | - | - | Clean | Clean | Clean |
| Moot | Tshwane Metro | - | - | - | Clean | Clean | Clean | Clean |
| Nigel | Ekurhuleni Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Pretoria North | Tshwane Metro | - | - | - | - | - | Clean | Clean |
| Pretoria East (Garsfontein) | Tshwane Metro | - | - | - | Clean | Clean | Clean | Clean |
| Pretoria East (Moreleta Park) | Tshwane Metro | - | - | - | - | Clean | Clean | Clean |
| Pretoria East (Waterkloof) | Tshwane Metro | - | - | - | - | Clean | Clean | Clean |
| Pretoria West | Tshwane Metro | - | - | - | High phenol and chromium concentrations | Clean | Clean | Clean |
| Primrose | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Randburg | Johannesburg Metro | - | Clean | Clean | Clean | Clean | - | Clean |
| Randfontein | Rand West City LM | - | - | - | - | - | - | Clean |
| Rayton | Tshwane Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Springs | Ekurhuleni Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Tedstoneville | Ekurhuleni Metro | - | - | - | - | - | - | Clean |
| Vanderbijlpark | Emfuleni LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Vanderbijlpark South | Emfuleni LM | - | - | - | Clean | Clean | Clean | Clean |
| Vanderbijlpark West | Emfuleni LM | - | - | Clean | Clean | Clean | Clean | Clean |

| GAUTENG | | | | | | | | |
|-------------|------------------------|------|-------|-------|-------|-------|-------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Vereeniging | Emfuleni LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Waverley | Tshwane Metro | - | - | - | - | - | Clean | Clean |
| West Moot | Tshwane Metro | - | - | - | Clean | Clean | Clean | Clean |
| Westonaria | Rand West City LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Zambezi | Tshwane Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Other | | | | | | | | |
| Tuks Campus | University of Pretoria | - | - | - | Clean | Clean | Clean | Clean |

| WESTERN CAPE | | | | | | | | |
|-----------------------|-----------------|-------|-------|-------|-------|-------|---------------------------------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Bitterfontein | Matzikama LM | - | - | - | Clean | - | - | Clean |
| Citrusdal | Cederberg LM | - | Clean | Clean | Clean | - | Clean | - |
| Clanwilliam | Cederberg LM | - | - | - | - | - | Clean | - |
| Gans Bay | Overstrand LM | - | - | - | - | - | Clean | Clean |
| George | George LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Hermanus (Sand Bay) | Overstrand LM | - | Clean | Clean | Clean | - | Clean | Clean |
| Hessequa (Still Bay) | Hessequa LM | - | - | - | Clean | Clean | Clean | Clean |
| Cape Town (Bellville) | Cape Town Metro | - | - | Clean | Clean | Clean | Clean | Clean |
| Klawer | Matzikama LM | - | - | - | Clean | Clean | Clean | Clean |
| Kleinmond | Overstrand LM | - | - | - | Clean | Clean | Clean | Clean |
| Ladismith | Kannaland LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Lutzville | Matzikama LM | - | - | Clean | Clean | - | Clean | - |
| Montagu | Langeberg LM | - | - | Clean | Clean | Clean | - | Clean |
| Mossel Bay | Mossel Bay LM | - | - | - | - | - | Clean | Clean |
| Nuwerus | Matzikama LM | Clean | Clean | Clean | Clean | Clean | Phosphates >25 ppm ⁴ | Clean |
| Oudtshoorn | Oudtshoorn LM | - | - | - | Clean | - | - | Clean |
| Pearly Beach | Overstrand LM | - | - | - | - | Clean | Clean | Clean |
| Robertson | Langeberg LM | - | - | - | - | - | Clean | Clean |
| Stellenbosch | Stellenbosch LM | - | - | - | Clean | - | Clean | Clean |
| Vanrhynsdorp | Matzikama LM | - | - | - | - | Clean | Clean | Clean |
| Vredendal | Matzikama LM | - | - | Clean | Clean | Clean | - | Clean |
| Vredendal | Matzikama PM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |

⁴ ppm: parts per million

WESTERN CAPE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------------|----------------|------|------|-------|-------|-------|-------|-------|
| Vredendal South | Matzikama LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Velddrif | Bergrivier LM | - | - | - | - | - | Clean | Clean |
| Wellington | Drakenstein LM | - | - | - | - | Clean | Clean | Clean |
| Other | | | | | | | | |
| Stellenbosch Campus (Maties) | | - | - | Clean | Clean | Clean | Clean | Clean |

NORTHERN CAPE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Buffelsrivier | Nama Khoi LM | - | - | - | Clean | - | - | - |
| Douglas | Siyancuma LM | - | - | - | - | - | Clean | Clean |
| Hopetown | Thembelihle LM | - | - | - | - | - | Clean | Clean |
| Kakamas | Ka Garib LM | - | - | - | - | - | Clean | Clean |
| Kathu | Gamagara LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Kamiesberg | Kamieskroon LM | - | Clean | Clean | Clean | Clean | - | - |
| Keimoes | Ka Garib LM | - | - | - | - | - | Clean | Clean |
| Kimberley | Sol Plaatje LM | Clean | Clean | Clean | Clean | - | Clean | Clean |
| Kuruman | Ga-Segonyana LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Nababeep | Nama Khoi LM | - | - | - | Clean | - | - | - |
| Orania | Orania Town Council | - | - | - | - | Clean | - | Clean |
| Postmasburg | Tsantsabane LM | - | - | - | Clean | Clean | Clean | Clean |
| Springbok | Nama Khoi LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Upington | Khara Hais LM | - | - | - | - | Clean | Clean | Clean |
| Vaalharts | Phokwane LM | - | Clean | Clean | Clean | - | Clean | Clean |
| Warrenton | Magareng LM | - | - | - | - | - | Clean | Clean |
| Williston | Karoo Hoogland LM | - | - | - | - | - | Clean | - |

EASTERN CAPE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------|----------------------|----------------|-------|----------------|-------|-------|---------------------------------|-------|
| Aliwal North | Walter Sisulu LM | - | - | - | - | - | Phosphates >25 ppm | Clean |
| Barkly East | Senqu LM | - | Clean | Clean | Clean | Clean | - | - |
| Burgersdorp | Walter Sisulu LM | - | - | - | - | - | Clean | Clean |
| Cradock | Inxuba Yethemba LM | - | - | Clean | Clean | Clean | Clean | - |
| Elliot | Sakhisizwe LM | <i>E. coli</i> | Clean | Clean | Clean | Clean | - | Clean |
| Jeffreys Bay | Kouga LM | Clean | Clean | Clean | Clean | Clean | - | Clean |
| Middelburg | Inxuba Yethemba PM | - | - | - | - | - | Clean | - |
| Molteno | Inkwanca LM | - | - | <i>E. coli</i> | Clean | Clean | Clean | - |
| East Londen | Buffalo City Metro | - | - | - | - | - | Clean | - |
| Port Elizabeth | Nelson Mandela Metro | Clean | Clean | Clean | Clean | Clean | - | Clean |
| Queenstown | Lukhanji LM | - | - | - | - | - | Faecal coliform bacteria >3 000 | - |
| Sterkstroom | Enoch Mgijima LM | - | - | - | - | - | Clean | - |
| Stutterheim | Amahlathi LM | - | - | - | - | - | Clean | - |
| Steynsburg | Gariep LM | - | - | - | - | - | Clean | - |
| Tarkastad | Tsolwana LM | - | - | <i>E. coli</i> | Clean | Clean | Clean | - |

FREE STATE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------------------------|----------------|------|-------|-------|-------|-------|-------|-------|
| Allanridge | Matjhabeng LM | - | - | - | Clean | - | Clean | Clean |
| Bethlehem | Dihlabeng LM | - | - | - | - | Clean | Clean | Clean |
| Bloemfontein Central | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bloemfontein (Fichardpark) | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bloemfontein (Hospitaalpark) | Mangaung Metro | - | - | - | Clean | Clean | Clean | Clean |
| Bloemfontein (Pellissier) | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bloemfontein (Rayton- Heuwelsig) | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bloemfontein (Uitsig) | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bloemfontein (Langenhoven-park) | Mangaung Metro | - | - | Clean | Clean | Clean | Clean | Clean |

| FREE STATE | | | | | | | | |
|-------------------------------|------------------------------|-------------|-------------------------|-------|-------|-----------------------------|--------------------------------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Bloemfontein (Wilgehof) | Mangaung Metro | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Bothaville | Nala LM | Clean | Clean | Clean | Clean | Clean | Phosphates >25 | Clean |
| Boshoff | Tokologo LM | - | - | - | - | - | Clean | - |
| Brandfort | Masilonyana LM | - | - | Clean | Clean | Clean | No water available | - |
| Bultfontein | Tswelopele LM | - | - | - | - | Clean | Clean | Clean |
| Dealesville | Tokologo LM | - | Clean | Clean | Clean | Clean | - | Clean |
| Frankfort | Mafube LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Harrismith | Maluti-A-Phofung LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Heilbron | Ngwathe LM | - | - | Clean | Clean | 5 Faecal coliform bacteria | Clean | Clean |
| Hennenman | Matjhabeng LM | - | - | - | Clean | Clean | Clean | Clean |
| Hertzogville | Tokologo LM | 14 nitrates | 4 E. coli & 14 nitrates | Clean | Clean | Clean | E.coli >1 000 cfu ⁵ | Clean |
| Koppies | Ngwathe LM | - | - | - | - | Clean | Clean | Clean |
| Kroonstad | Moqhaka LM | - | - | - | - | Clean | Clean | Clean |
| Odendaalsrus | Matjhabeng LM | - | - | - | - | Clean | - | Clean |
| Parys | Ngwathe LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Petrus Steyn | Nketoana LM | - | Clean | Clean | Clean | Clean | - | Clean |
| Reitz | Nketoana LM | - | - | Clean | Clean | Clean | - | Clean |
| Sasolburg | Metsimaholo LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Senekal | Setsoto LM | - | - | - | - | - | Clean | Clean |
| Theunissen | Masilonyana LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Villiers | Mafube LM | - | - | - | - | 25 Faecal coliform bacteria | Clean | - |
| Viljoenskroon | Moqhaka LM | - | - | - | Clean | - | Clean | Clean |
| Vrede | Phumelela LM | - | - | - | - | Clean | - | - |
| Vredefort | Ngwathe LM | - | - | - | - | Clean | Clean | Clean |
| Welkom | Matjhabeng LM | - | - | Clean | Clean | - | Clean | Clean |
| Wesselsbron | Nala LM | - | - | - | Clean | - | Clean | - |
| Winburg | Masilonyana LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Other | | | | | | | | |
| Bloemfontein Campus (Kovsies) | University of the Free State | - | - | - | Clean | Clean | Clean | Clean |

⁵ cfu: coliform units

| MPUMALANGA | | | | | | | | |
|----------------|-------------------|-----------|--|-------|---|-------|-------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Amersfoort | Pixley Ka Seme LM | - | - | - | - | - | Clean | Clean |
| Badplaas | | - | - | - | - | - | - | Clean |
| Balfour | Dipaleseng LM | - | - | - | - | Clean | Clean | Clean |
| Barberton | Mbombela LM | - | - | - | - | - | Clean | Clean |
| Belfast | Emakhazeni LM | Clean | Clean | Clean | Faecal coliform bacteria and <i>E. coli</i> | Clean | Clean | Clean |
| Bethal | Govan Mbeki LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Breyten | Msukaligwa LM | - | - | - | - | - | Clean | Clean |
| Carolina | Albert Luthuli LM | - | - | - | - | - | - | Clean |
| Charl Cilliers | Govan Mbeki LM | - | - | - | - | Clean | Clean | Clean |
| Chrissiesmeer | Msukaligwa LM | - | - | - | - | - | Clean | Clean |
| Delmas | Victor Khanye LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Dullstroom | Emakhazeni LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Ermelo | Msukaligwa LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Evander | Govan Mbeki LM | - | - | - | - | - | Clean | Clean |
| Greylingstad | Dipaleseng LM | - | - | - | - | Clean | - | Clean |
| Hendrina | Steve Tshwete LM | - | - | - | - | - | - | Clean |
| Kriel | Emalahleni LM | - | - | - | - | Clean | Clean | Clean |
| Leandra | Govan Mbeki LM | - | - | - | - | Clean | Clean | Clean |
| Lydenburg | Thaba Chweu LM | Clean | Clean | Clean | High concentrations of faecal coliform bacteria | Clean | Clean | Clean |
| Machadodorp | Emakhazeni LM | 5 cadmium | Clean | Clean | Clean | Clean | Clean | Clean |
| Middelburg | Steve Tshwete LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Morgenzon | Lekwa LM | - | - | - | - | Clean | Clean | Clean |
| Nelspruit | Lekwa LM | - | - | - | - | Clean | Clean | Clean |
| Ogies | Emalahleni LM | - | - | - | - | - | Clean | - |
| Piet Retief | Mkhondo LM | - | Clean | Clean | Faecal coliform bacteria and <i>E. coli</i> | Clean | Clean | Clean |
| Sabie | | - | - | - | - | - | - | Clean |
| Secunda | Govan Mbeki LM | - | - | - | Clean | Clean | Clean | Clean |
| Standerton | Lekwa LM | - | Colour exceeds limits, but water not unhealthy | Clean | Clean | Clean | Clean | Clean |
| Stoffberg | Emalahleni LM | - | - | - | - | - | Clean | - |
| Sundra | Victor Khanye LM | - | - | - | - | - | Clean | Clean |

| MPUMALANGA | | | | | | | | |
|--------------|-------------------|------|-------------------------|-------|---|-------|-------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Trichardt | Govan Mbeki LM | - | - | - | - | - | Clean | - |
| Volksrus | Pixley Ka Seme LM | - | - | - | - | - | Clean | Clean |
| Wakkerstroom | Pixley Ka Seme LM | - | - | - | - | - | Clean | Clean |
| Witbank | Masilonyana LM | - | 11 total organic carbon | Clean | Faecal coliform bacteria and <i>E. coli</i> | Clean | Clean | Clean |
| White River | Mbombela LM | - | - | - | Clean | Clean | Clean | Clean |

| NORTH WEST | | | | | | | | |
|-----------------|----------------------|-------|-----------------------------|----------------|-------|-------|---------------------|--|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Bloemhof | Lekwa-Teemane LM | - | 68 Faecal coliform bacteria | Clean | Clean | Clean | Clean | Clean |
| Brits | Madibeng LM | - | - | - | Clean | Clean | Clean | Phosphates >50 ppm |
| Christiana | Lekwa-Teemane LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Coligny | Ditsobotla LM | - | 4 <i>E. coli</i> | <i>E. coli</i> | Clean | Clean | Clean | Clean |
| Delareyville | Tswaing LM | - | - | - | Clean | Clean | Phosphates >100 ppm | Nitrates >25 ppm Phosphates >25 ppm |
| Groot-Mariko | Ramotshere Moiloa LM | - | - | - | - | - | Clean | Clean |
| Hartbeesfontein | City of Matlosana LM | - | - | - | Clean | Clean | - | - |
| Hartbeespoort | Madibeng LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Jouberton | City of Matlosana LM | - | - | - | Clean | - | - | - |
| Klerksdorp | City of Matlosana LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Koster | Kgetlengrivier LM | - | - | - | Clean | - | - | - |
| Leeudoringstad | Maquassi Hills | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Lichtenburg | Ditsobotla LM | - | - | - | - | Clean | Clean | Clean |
| Mahikeng | Mahikeng LM | - | - | - | Clean | Clean | Clean | Clean |
| Makwassie | Maquassi Hills LM | - | Clean | Clean | Clean | Clean | - | Clean |
| Mooinooi | Madibeng LM | - | - | - | - | - | Clean | Clean |
| Orkney | City of Matlosana LM | - | - | - | Clean | Clean | Clean | Clean |
| Ottosdal | Tswaing LM | - | - | - | Clean | Clean | Clean | Clean |
| Potchefstroom | Tlokwe LM | - | - | - | Clean | Clean | Clean | Clean |
| Ottosdal | Tswaing PM | - | - | - | Clean | Clean | Phosphates >25 ppm | Clean |
| Potchefstroom | Tlokwe PM | - | Clean | Clean | Clean | Clean | Clean | Clean |

| NORTH WEST | | | | | | | | |
|------------------------------|-----------------------|------|----------------------------------|-------------|----------------------------------|-------|---|--------------------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Rustenburg | Rustenburg LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Sannieshof | Tswaing LM | - | - | - | - | Clean | Nitrates >10 ppm Phosphates >100 ppm | Phosphates >25 ppm |
| Schweizer- Reneke | Mamusa LM | - | - | Clean | Nitrates above permissible level | Clean | Phosphates >25 ppm | Clean |
| Stella | Naledi LM | - | 140 <i>E. coli</i> & 18 nitrates | 50 nitrates | Nitrates above permissible level | Clean | Faecal coliform bacteria >3 000 cfu Phosphates >25 ppm | Nitrates >100 ppm |
| Stilfontein | City of Matlosana LM | - | - | - | Clean | Clean | Clean | Clean |
| Swartruggens | Kgetlengrivier LM | - | - | - | - | Clean | Faecal coliform bacteria 3 cfu <i>E. coli</i> 3 cfu | Clean |
| Ventersdorp | Ventersdorp LM | - | Clean | Clean | Clean | Clean | Clean | - |
| Vryburg | Naledi LM | - | 4 <i>E. coli</i> | Clean | Clean | Clean | Faecal coliform bacteria >3 000 cfu | Clean |
| Wolmaransstad | Maquassi Hills | - | - | Clean | Clean | Clean | Clean | Clean |
| Zeerust | Ramotshere Moiloa LM | - | - | - | Clean | Clean | Clean | Clean |
| Other | | | | | | | | |
| Buffelspoort | Madibeng LM | - | - | - | - | Clean | - | Clean |
| Potchefstroom Campus (Pukke) | North-West University | - | - | - | Clean | Clean | Clean | Clean |

| LIMPOPO | | | | | | | | |
|--------------|---------------------|------|------|-------|-------|--------------------------------------|--|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Ellisras | Lephalale LM | - | - | - | Clean | 8 units of <i>E. coli</i> per 100 ml | <i>E. coli</i> >2 cfu Faecal coliform bacteria >2 cfu | Clean |
| Groblersdal | Elias Motsoaledi LM | - | - | - | Clean | Clean | Clean | Clean |
| Haenertsburg | Greater Tzaneen LM | - | - | - | - | Clean | Clean | Clean |
| Leeupoort | Thabazimbi LM | - | - | Clean | Clean | - | - | Clean |

LIMPOPO

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------------|----------------------|-------|--------------------------------------|-------|-------|-------|-------|-------|
| Louis Trichardt | Makhado LM | - | - | - | Clean | Clean | Clean | Clean |
| Marble Hall | Sekhukhune DM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Naboomspruit | Lim368 LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Nylstroom | Lim368 LM | - | - | - | Clean | Clean | Clean | Clean |
| Phalaborwa | Ba-Phalaborwa LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Pietersburg | Polokwane LM | Clean | 4 units of <i>E. coli</i> per 100 ml | Clean | Clean | Clean | Clean | Clean |
| Rooiberg | Thabazimbi LM | - | - | - | - | - | - | Clean |
| Thabazimbi | Thabazimbi LM | - | - | - | - | - | - | Clean |
| Tzaneen | Greater Tzaneen LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Vaalwater | Lim368 LM | - | - | - | Clean | Clean | Clean | Clean |
| Warmbaths | Bela-Bela LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Other | | | | | | | | |
| Letaba Camp | National Kruger Park | - | - | - | Clean | Clean | Clean | Clean |
| Olifants Camp | National Kruger Park | - | - | - | Clean | Clean | - | Clean |

KWAZULU-NATAL

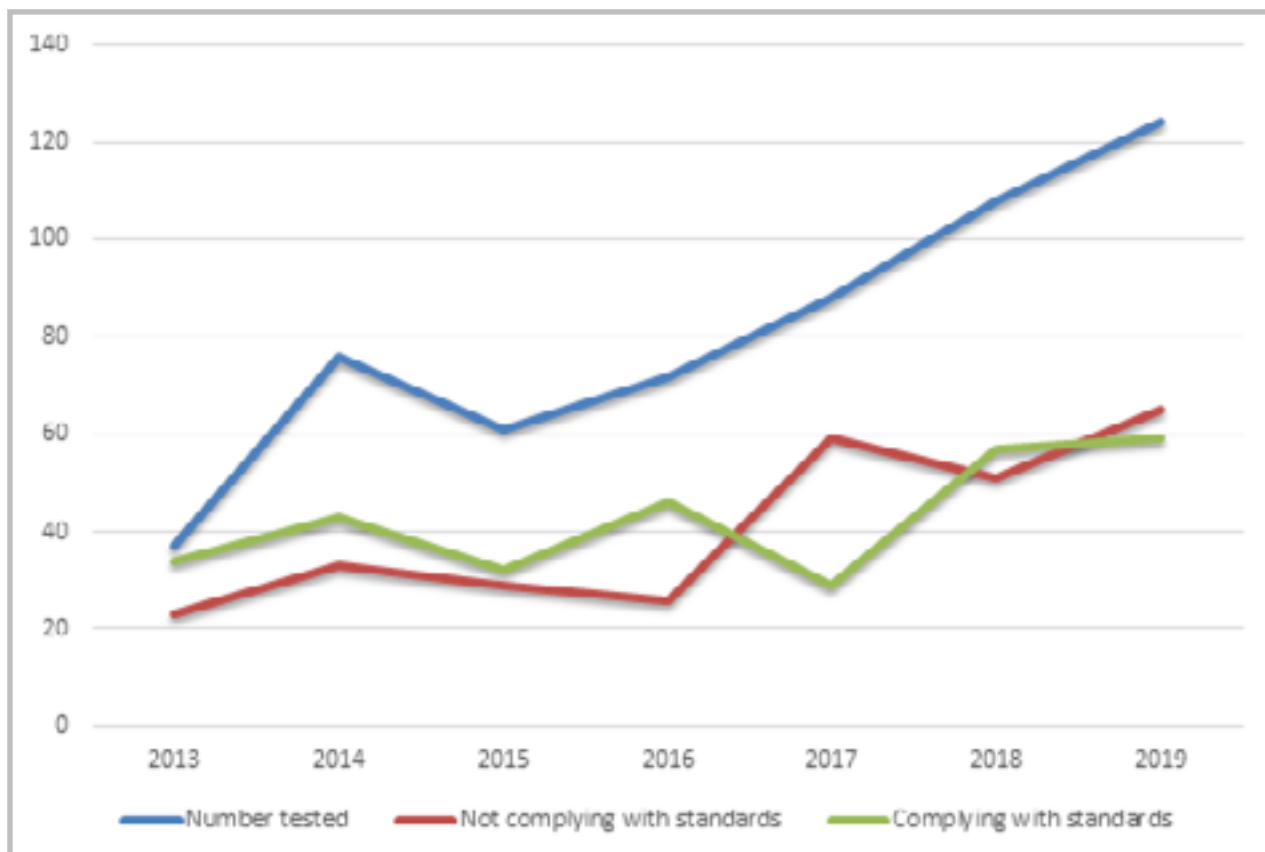
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------------|------------------------|-------|-------|----------------|-------------------------|-------|-------|-------|
| Hluhluwe | The Big 5 False Bay LM | - | - | - | - | Clean | Clean | Clean |
| Ixopo | Ubuhlebezwe LM | - | - | - | - | Clean | - | - |
| Margate | Hibiscus Coast LM | Clean | Clean | Clean | Clean | Clean | Clean | Clean |
| Newcastle | Newcastle LM | - | - | Clean | Clean | Clean | Clean | Clean |
| Paulpietersburg | eDumbe LM | - | Clean | Clean | Water in tenks is Clean | Clean | Clean | Clean |
| Pongola | uPongola LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Richards Bay | uMhlathuze LM | - | - | - | - | - | Clean | Clean |
| Utrecht | eMadlangeni LM | - | Clean | Clean | Clean | Clean | Clean | Clean |
| Underberg | Kwa Sani LM | - | - | - | - | Clean | - | - |
| Vryheid | Abaqulusi LM | - | Clean | <i>E. coli</i> | Clean | Clean | Clean | Clean |

Green Drop

In May and June 2019, AfriForum tested the sewage systems of 124 towns, 65 of which did not comply with the set quality standards, compared to 51 of 108 sewage systems in 2018. It is therefore clear that sewage treatment works (STWs) in South Africa continue to be operated in a very bad way.

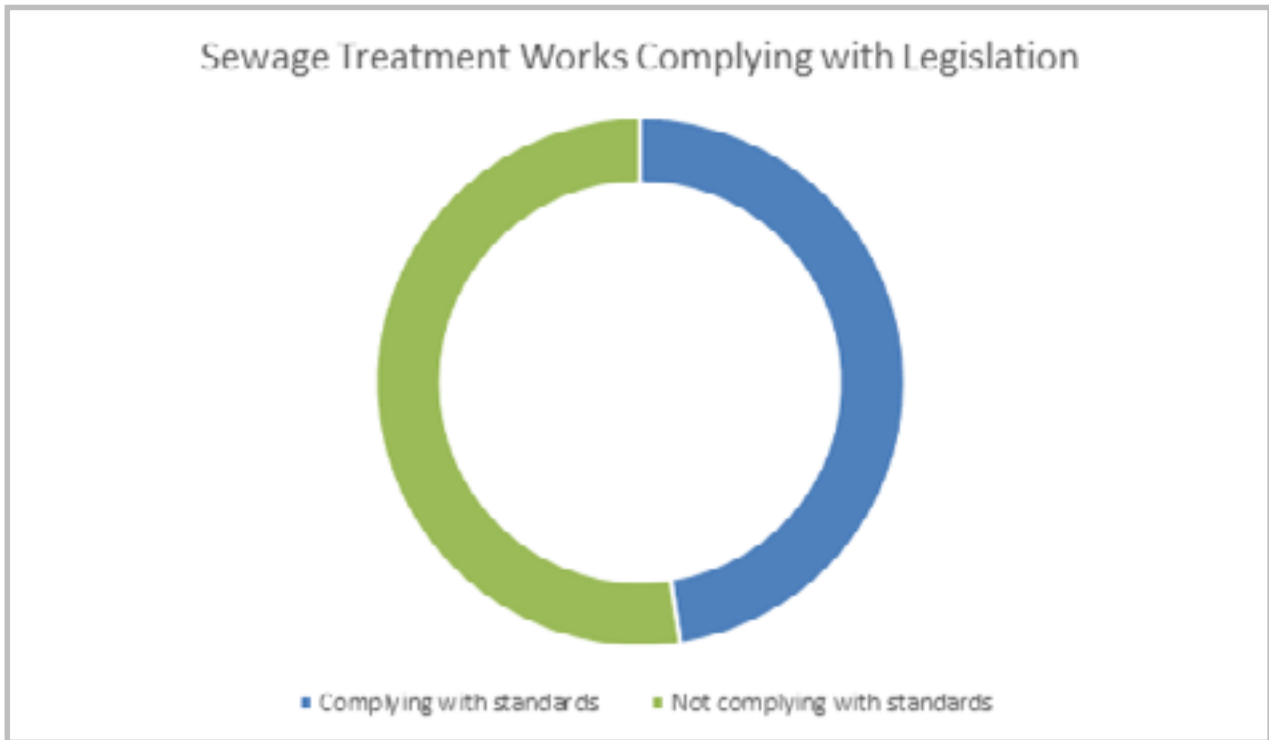
The results of towns' sewage tested in 2013—2018 are included in this report for purposes of comparison with the 2019 results.

The graph below shows the green drop results of 2013 to 2019.

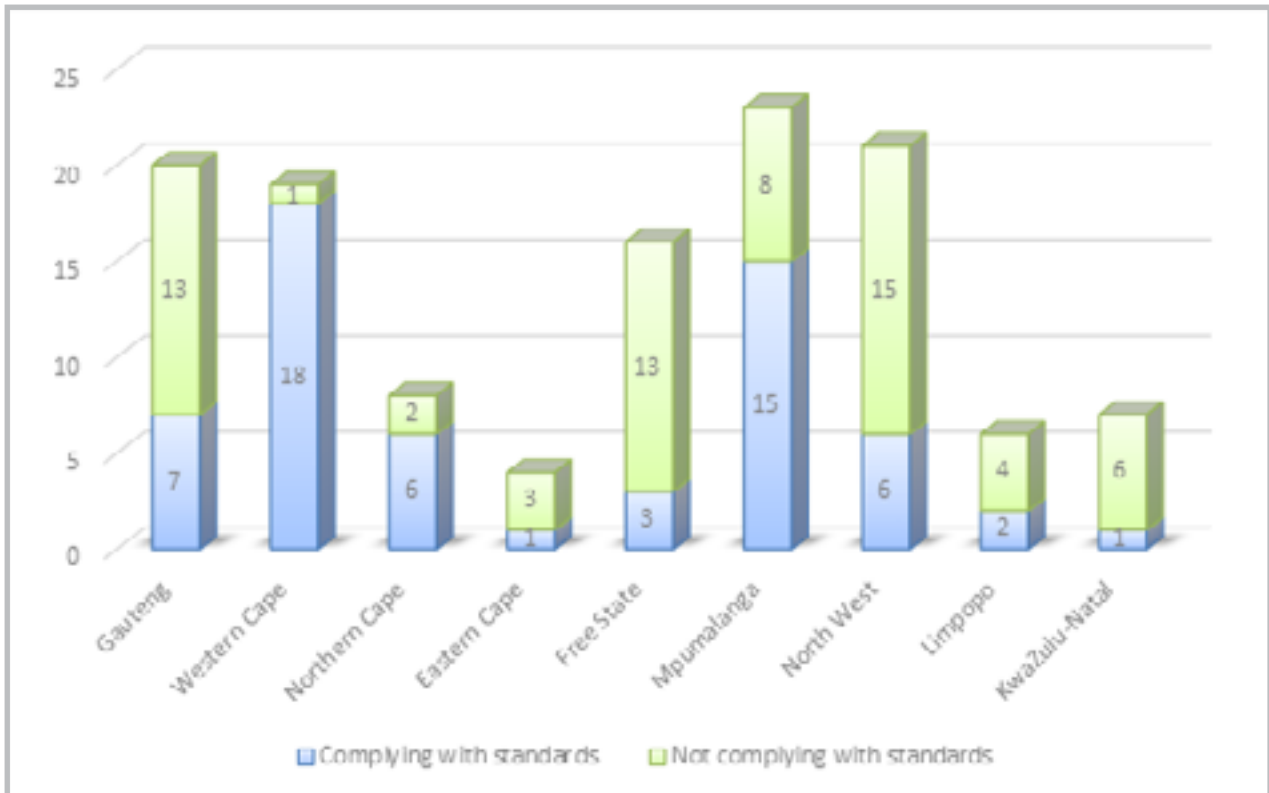


Graph 2: Green Drop (sewage) results 2013—2019.

The graph below shows the percentage pass figure of sewage treatment works for 2019.



Graph 3: Number of sewage treatment works not complying with sewage requirements.



Graph 4: Green drop (sewage) results by province.



From left to right: De Wet Ungerer and Hennie van Eck conducting green drop tests at Rietspruit STW.

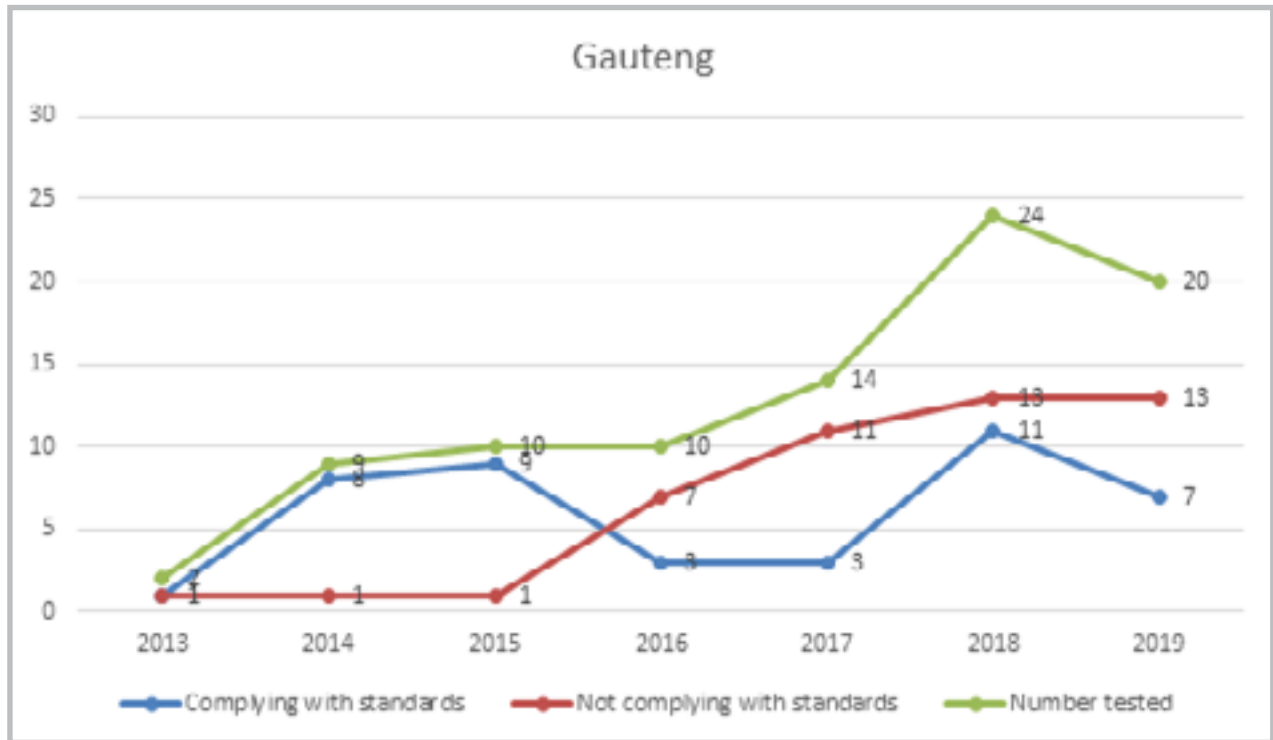
There were 65 STWs that did not comply with South African national water quality standards during AfriForum’s project. In terms of these standards, treated sewage may not contain more than 1 000 units of *E. coli* per 100 ml of treated sewage. These 61 STWs are indicated in orange below.

The following table indicates the areas where samples were tested, as well as the results of each STW (the figures indicate units of *E. coli* per 100 ml of water):

| GAUTENG | | | | | | | | |
|-------------------------|------------------|--------|--------|-------|-------|--------|----------|----------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Alberton (ERWAT Dekema) | Ekurhuleni Metro | - | - | - | 3 900 | Clean | Clean | Clean |
| Apies River (Rooiwal) | Tshwane Metro | 77 000 | 85 000 | Clean | 2 000 | 15 000 | >100 000 | >100 000 |
| Benoni | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Brakpan | Ekurhuleni Metro | - | - | - | - | >2 500 | Clean | Clean |
| Bronkhorstspuit | Tshwane Metro | - | - | - | - | 2 000 | >100 000 | >100 000 |

| GAUTENG | | | | | | | | |
|-----------------------------|-------------------|-------|-------|--------|--|--------|-----------------------|----------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Centurion West (Suiderland) | Tshwane Metro | Clean | Clean | 10 000 | 100 000 | 5 500 | >100 000 | >100 000 |
| Cullinan (Cullinan) | Tshwane Metro | - | Clean | Clean | Clean | 2 400 | >10 000 | >10 000 |
| Edenvale | Ekurhuleni Metro | - | - | - | - | - | >10 000 | >10 000 |
| Elsburg | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Germiston | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Heidelberg | Lesedi LM | - | Clean | Clean | - | >3 000 | Clean | >1000 |
| Roodepoort | West Rand DM | - | - | - | - | - | Clean | - |
| Kameeldrift (Baviaanspoort) | Tshwane Metro | - | - | - | - | - | >10 000 | >100 000 |
| Kempton Park | Ekurhuleni Metro | - | Clean | Clean | - | - | - | Clean |
| Magaliesburg | Mogale City | - | - | - | - | - | Clean | - |
| Midvaal ERWAT | Midvaal LM | - | - | - | - | - | Clean | - |
| Midvaal | Midvaal LM | - | - | - | - | - | - | >15 000 |
| Nigel | Ekurhuleni Metro | - | Clean | Clean | High concentration of faecal coliform bacteria | >3 000 | - | - |
| Pretoria West (Daspoort) | Tshwane Metro | - | - | - | 12 000 | 15 000 | >10 000 | >10 000 |
| Primrose | Ekurhuleni Metro | - | - | - | - | - | Clean | Clean |
| Randfontein | Randfontein LM | - | - | - | - | >4 000 | >4 000 <i>E.coli</i> | - |
| Springs | Ekurhuleni Metro | - | Clean | Clean | 2 000 | >2 000 | >5 000 <i>E.coli</i> | >5 000 |
| Vanderbijlpark (Leeukuil) | Emfuleni LM | - | Clean | Clean | Clean | >1 000 | >100 000 ⁶ | >10 000 |
| Vanderbijlpark (Rietspruit) | Emfuleni LM | - | - | - | - | - | >100 000 | >50 000 |
| Vanderbijlpark (Sebokeng) | Emfuleni LM | - | - | - | - | - | >100 000 | >50 000 |
| Vereeniging | Emfuleni LM | - | Clean | Clean | Clean | Clean | >1 000 | - |
| Westonaria | Rand West City LM | - | - | Clean | 2 500 | Clean | Clean | - |

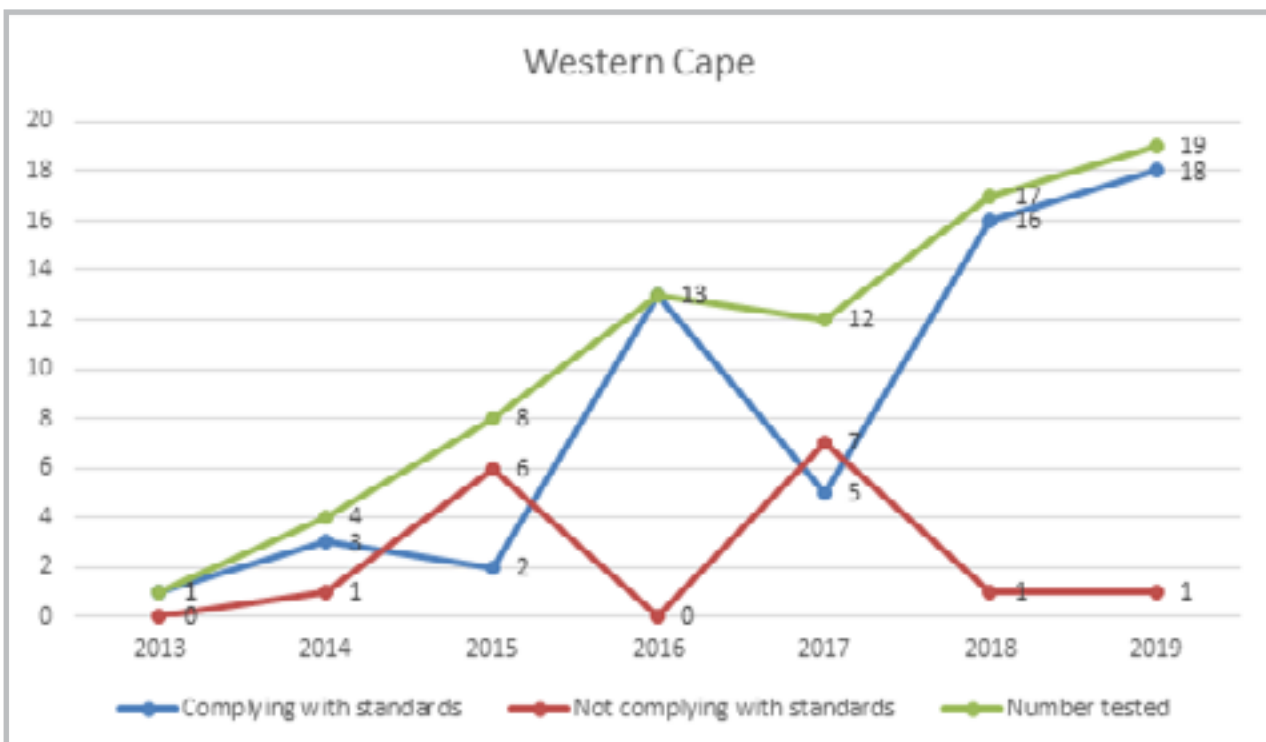
⁶ The Emfuleni Local Municipality's Leeukuil sewage treatment plant at the time of the inspection and test was not receiving an estimated 60% of the plant's inflow and sewage because of clogged pipes in the plant's infrastructure in the greater Tshepiso residential area in Vanderbijlpark.



Graph 5: Green drop (sewage) results of Gauteng.

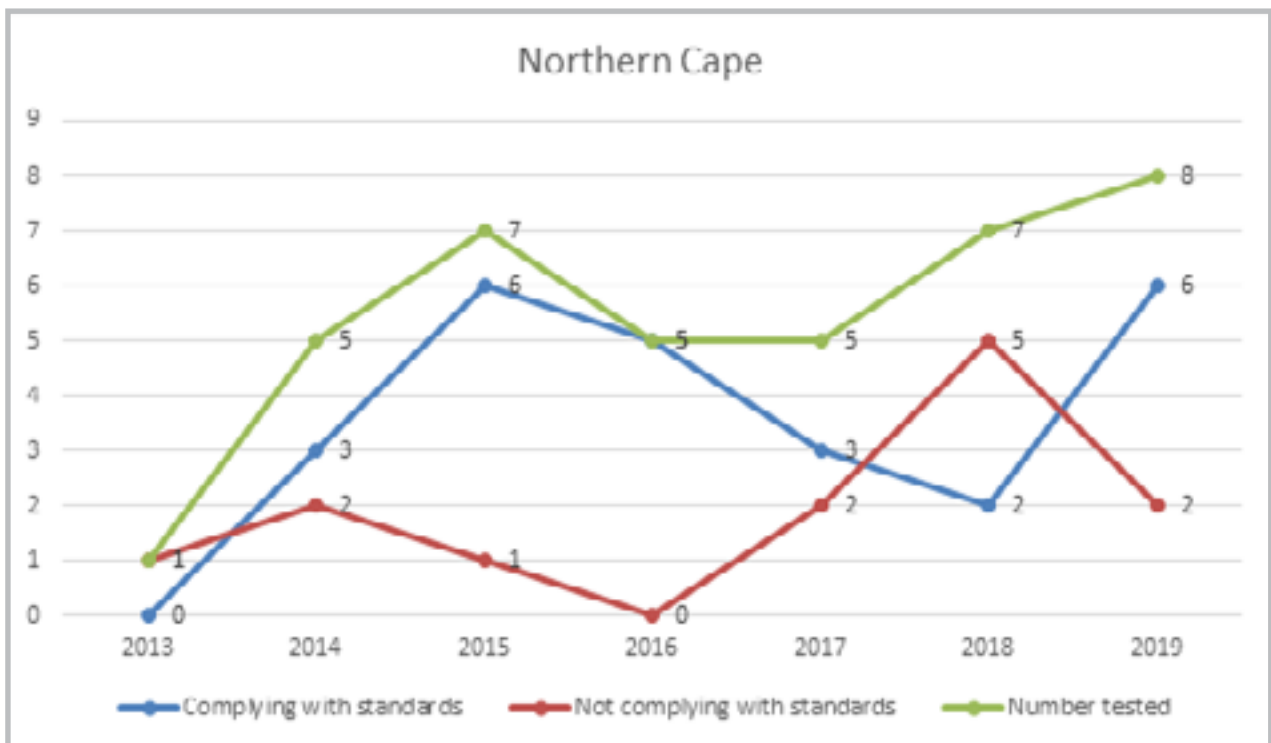
| WESTERN CAPE | | | | | | | | |
|-------------------------------------|-----------------|------|-------|-------|-------|--------|--------|--------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Bitterfontein | Matzikama LM | - | - | - | - | - | - | Clean |
| Darling | Swartland LM | - | - | - | - | - | - | Clean |
| Clanwilliam | Cederberg LM | - | - | - | - | - | Clean | - |
| Citrusdal | Cederberg LM | - | - | - | - | - | Clean | - |
| Gans Bay | Overstrand LM | - | - | - | - | >3 000 | - | Clean |
| George | George LM | - | - | - | Clean | Clean | Clean | Clean |
| Hawston | Overstrand LM | - | - | - | - | - | - | Clean |
| Hermanus | Overstrand LM | - | 3 600 | Clean | Clean | - | - | Clean |
| Cape Town Kraaifontein (Scottsdale) | Cape Town Metro | - | - | - | Clean | Clean | >1 000 | >1 000 |
| Cape Town North (Kewtown) | Cape Town Metro | - | - | - | - | 50 000 | Clean | - |
| Klawer | Matzikama LM | - | - | 2 000 | Clean | >1 500 | Clean | Clean |
| Kleinmond | Overstrand LM | - | Clean | Clean | Clean | Clean | - | Clean |
| Ladismith | Kannaland LM | - | - | - | Clean | - | Clean | - |
| Lutzville | Matzikama LM | - | - | 1 500 | Clean | >2 000 | - | Clean |

| WESTERN CAPE | | | | | | | | |
|-----------------|-----------------|-------|-------|---------|-------|--------|-------|-------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Montagu | Langeberg LM | - | - | - | - | - | Clean | - |
| Mossel Bay | Mossel Bay LM | - | - | - | Clean | >2 400 | Clean | Clean |
| Nuwerus | Matzikama LM | - | - | - | Clean | - | - | Clean |
| Oudtshoorn | Oudtshoorn LM | - | Clean | 100 000 | - | Clean | Clean | Clean |
| Robertson | Langeberg LM | - | - | - | Clean | - | Clean | Clean |
| Stellenbosch | Stellenbosch LM | - | - | - | - | - | Clean | Clean |
| Still Bay | Hessequa LM | - | - | - | - | - | Clean | - |
| Vanrhynsdorp | Matzikama LM | - | - | 1 500 | Clean | >1 500 | - | Clean |
| Velddrif | Bergrivier LM | - | - | - | - | - | Clean | - |
| Vredendal | Matzikama LM | Clean | Clean | 8 000 | Clean | Clean | Clean | Clean |
| Vredendal South | Matzikama LM | - | - | 2 000 | Clean | >1 500 | Clean | Clean |
| Wellington | Drakenstein LM | - | - | - | - | - | Clean | Clean |

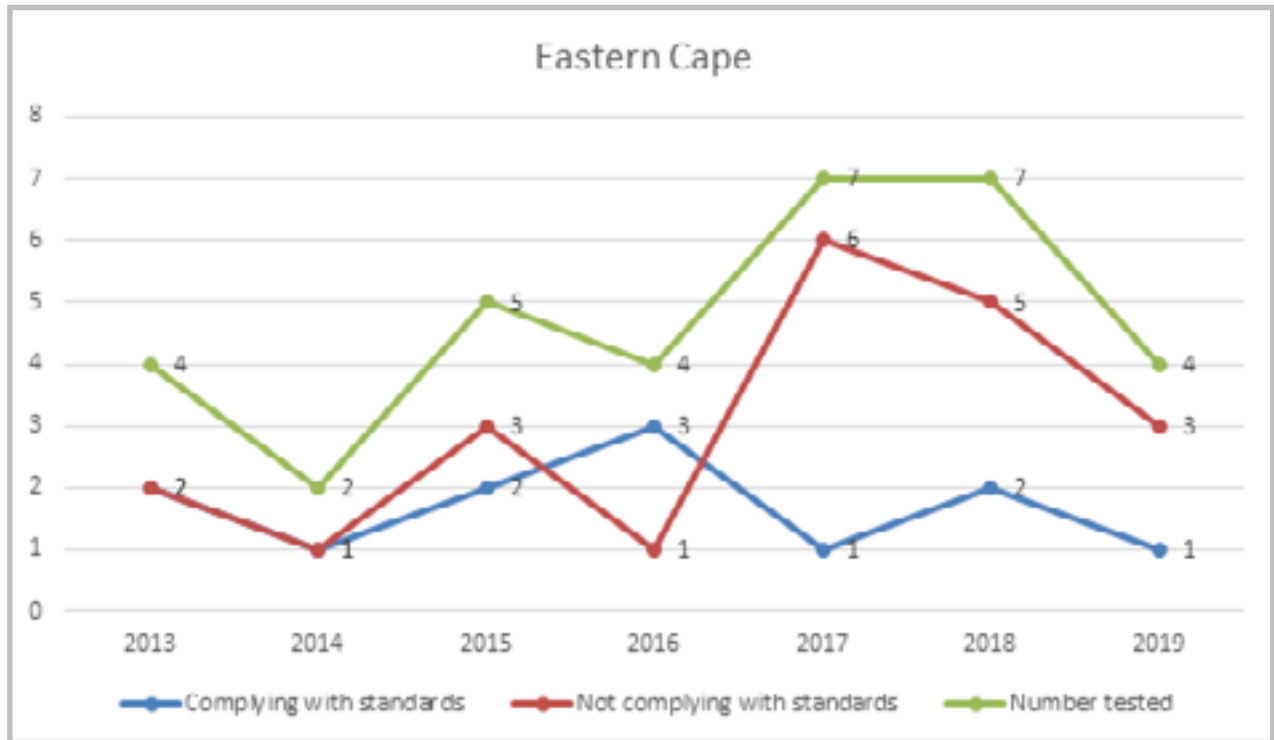


NORTHERN CAPE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------|-------------------|-------|----------|-------|-------|---------|--------|--------|
| Daniëlskuil | Kgatelopele LM | - | Clean | Clean | - | - | - | - |
| Kathu | Gamagara LM | - | 17 000 | Clean | - | Clean | Clean | Clean |
| Kimberley | Sol Plaatje LM | 1 600 | Rejected | 1 500 | Clean | - | - | >1 000 |
| Kamiesberg | Kamiesberg LM | - | - | - | Clean | - | - | - |
| Kuruman | Ga-Segonyana LM | - | Rejected | Clean | - | Clean | >1 000 | Clean |
| Nababeep | Nama Khoi LM | - | - | - | Clean | - | - | - |
| Postmasburg | Tsantsabane LM | - | - | - | - | >10 000 | >1 000 | Clean |
| Springbok | Nama Khoi LM | - | 1 250 | Clean | Clean | >1 500 | >1 000 | >1 000 |
| Upington | Khara Hais LM | - | - | - | - | Clean | >2 000 | Clean |
| Vaalharts | Phokwane LM | - | Clean | Clean | Clean | - | >1 000 | Clean |
| Williston | Karoo Hoogland LM | - | Clean | Clean | - | - | Clean | Clean |

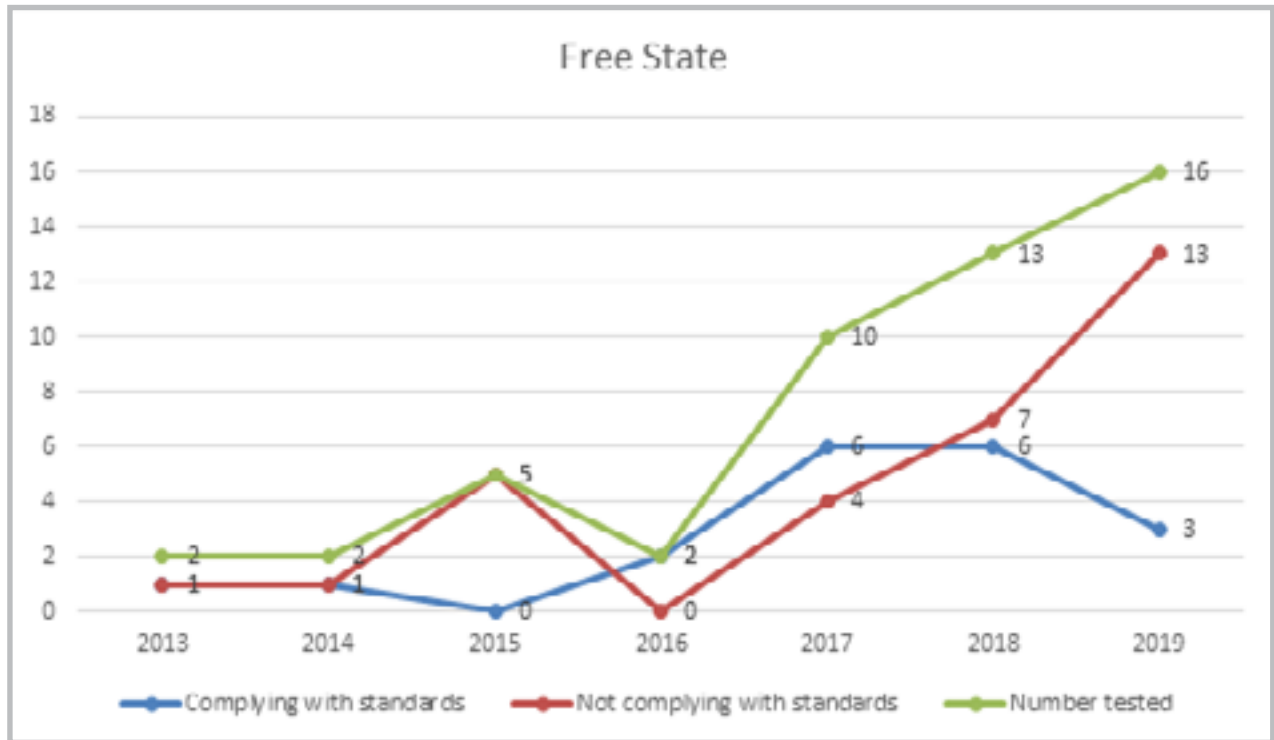


| EASTERN CAPE | | | | | | | | |
|---------------------------|-------------------------|--------|----------|--------|-------|--|--|--------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Aliwal North | Walter Sisulu LM | - | - | - | - | - | >50 000 <i>E. coli</i> | >1 000 |
| Barkly East | Senqu LM | - | - | 2 000 | Clean | Clean | - | - |
| Burgersdorp | Walter Sisulu LM | - | - | - | - | - | Clean | - |
| Cradock | Inxuba Yethemba LM | - | - | - | 2 000 | >1 000 | >1 500 faecal coliform bacteria | - |
| Elliot | Sakhisizwe LM | 36 000 | Rejected | 4 000 | - | - | Clean | Clean |
| Jeffreys Bay | Kouga LM | 34 000 | - | Clean | Clean | High phosphate counts >30 000 | >1 000 <i>E. coli</i> | >1000 |
| Langkloof (Joubertina) | Kou-Kamma LM | Clean | 11 500 | >2 400 | - | - | - | - |
| Molteno | Inkwanca LM | - | - | - | Clean | >30 000 | >1 500 faecal coliform bacteria | - |
| Port Elizabeth | Nelson Mandela Metro | Clean | Clean | Clean | - | >30 000 | - | >1000 |
| Queenstown | Lukhanji LM | - | - | - | - | - | >3 000 faecal coliform bacteria | - |
| Tarkastad | Tsolwana LM | - | - | - | - | High phosphate counts | - | - |



FREE STATE

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|---------------------|-------|--------|-----------|-------|--------|---|----------|
| Bethlehem | Dihlabeng LM | - | - | - | - | Clean | >1 000 faecal coliform bacteria | >10 000 |
| Bothaville | Nala LM | - | - | - | - | - | >1 500 | - |
| Bloemfontein | Mangaung Metro | - | - | - | Clean | Clean | - | >1 000 |
| Bultfontein | Tswelopele LM | - | - | - | - | - | - | >10 000 |
| Frankfort | Mafube LM | - | - | - | - | >2 500 | Clean | > 5 000 |
| Harrismith | Maluti-A-Phofung LM | - | - | - | - | Clean | - | > 2 000 |
| Heilbron | Ngwathe LM | - | - | - | - | - | Clean | Clean |
| Hertzogville | Tokologo LM | - | - | - | - | - | >1 000 <i>E. coli</i> cfu | >10 000 |
| Kroonstad | Moqhaka LM | Clean | - | 1 000 000 | - | - | >1 000 faecal coliform bacteria | >2 000 |
| Parys | Ngwathe LM | - | - | - | - | - | >20 000 <i>E. coli</i> 20 000 faecal coliform bacteria | Clean |
| Petrus Steyn | Nketoana LM | - | 14 000 | 1 000 000 | - | >3 000 | - | - |
| Reitz | Nketoana LM | - | - | 2 500 | - | >2 500 | - | >2 000 |
| Sasolburg | Metsimaholo LM | - | - | - | - | Clean | Clean | Clean |
| Senekal | | - | - | - | - | - | - | >4 000 |
| Theunissen | Masilonyana LM | - | - | 25 000 | - | - | Clean | - |
| Villiers | Mafube LM | - | - | - | - | >3 000 | Clean | - |
| Viljoenskroon | Moqhaka LM | - | - | - | - | - | Clean | >1 000 |
| Vrede | Phumelela LM | - | - | - | - | Clean | - | - |
| Welkom | Matjhabeng LM | - | - | - | - | - | >1 000 <i>E. coli</i> | > 10 000 |
| Winburg | Masilonyana LM | 2 000 | Clean | 10 000 | Clean | Clean | >1 000 faecal coliform bacteria | > 4 000 |

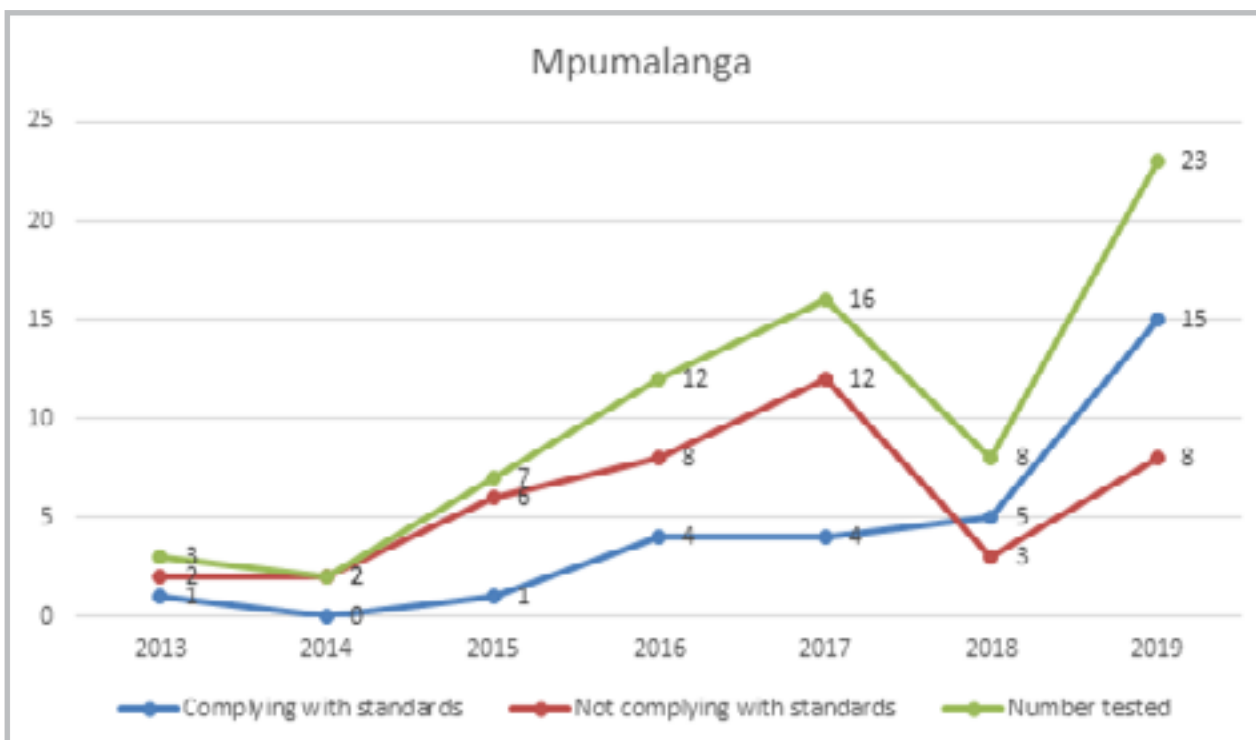


MPUMALANGA

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------|------------------|--------|---------|---------|---------|-----------------|-----------------------|--------|
| Amersfoort | | - | - | - | - | - | - | Clean |
| Balfour | Dipaleseng LM | - | - | - | - | >2 500 | - | Clean |
| Belfast | Emakhazeni LM | 19 000 | 690 000 | 5 200 | >2 400 | >5 000 | Clean | Clean |
| Bethal | Govan Mbeki LM | - | - | 450 000 | 100 000 | 50 000 | >1 000 <i>E. coli</i> | >1 000 |
| Charl Cilliers | Govan Mbeki LM | - | - | - | - | Clean | - | Clean |
| Delmas | Victor Khanye LM | - | - | Clean | 1 500 | High phosphates | - | Clean |
| Dullstroom | Emakhazeni LM | - | - | 2 000 | Clean | - | Clean | Clean |
| Ermelo | Msukaligwa LM | Clean | 310 000 | 590 000 | - | 1 500 | - | Clean |
| Evander | Govan Mbeki LM | - | - | - | - | - | - | >1 000 |

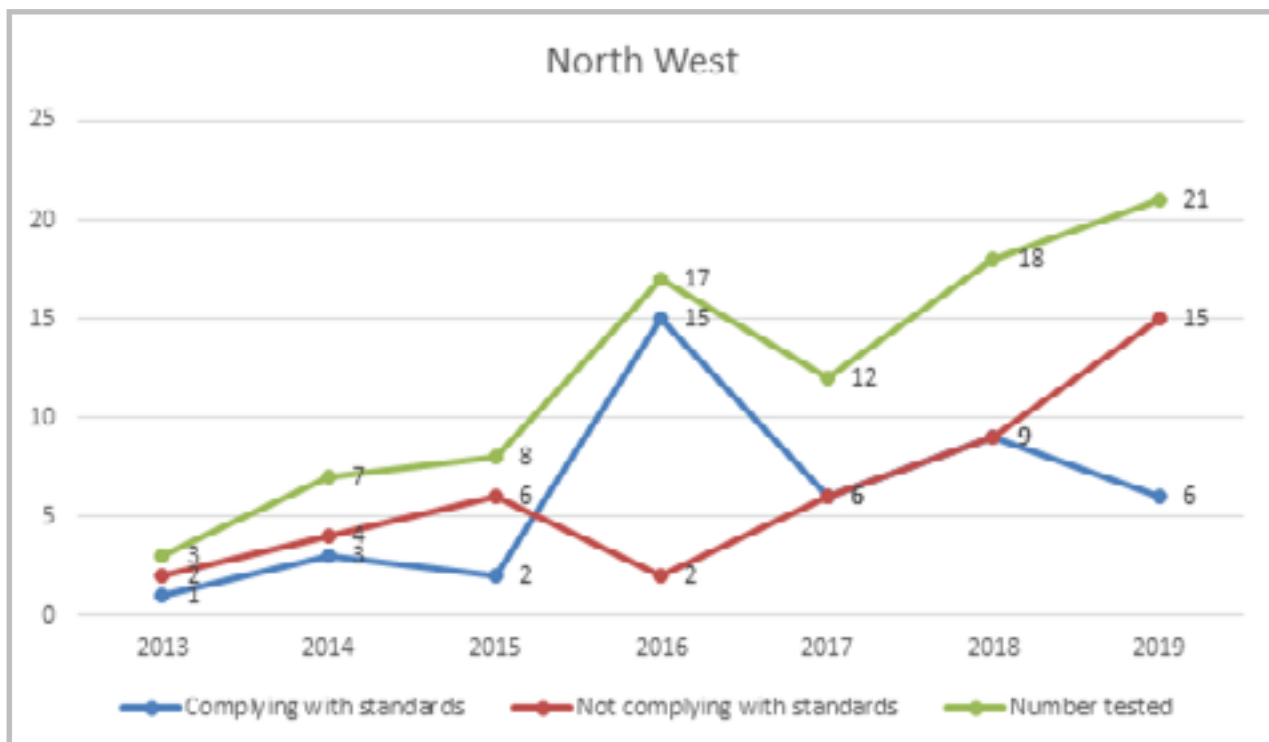
MPUMALANGA

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------|-------------------|-----------|------|---------|--------|-----------------|----------------|---------------|
| Greylingstad | Dipaleseng LM | - | - | - | - | Clean | - | Clean |
| Kriel | Emalahleni LM | - | - | - | - | >1 500 | - | - |
| Leandra | Govan Mbeki LM | - | - | - | - | - | - | Clean |
| Lydenburg | Thaba Chweu LM | 1 000 000 | - | 73 400 | >1 000 | 1 500 | Clean | >1 000 |
| Machadodorp | Emakhazeni LM | - | - | - | Clean | - | Clean | Phosphate >10 |
| Middelburg | Steve Tshwete LM | - | - | - | Clean | 1 500 | >25 Phosphate | Clean |
| Morgenzon | Lekwa LM | - | - | - | - | >1 500 | - | Clean |
| Nelspruit | Mbombela LM | - | - | - | - | - | - | Nitrate >25 |
| Piet Retief | Mkhondo LM | - | - | - | >1 000 | >1 000 | - | Clean |
| Secunda | Govan Mbeki LM | - | - | - | 2 000 | Clean | Clean | >1 000 |
| Standerton | Lekwa LM | - | - | 100 000 | 50 000 | 30 000 | >1 000 E. coli | >10 000 |
| Volksrus | Pixley ka Seme LM | - | - | - | - | - | - | Clean |
| Wakkerstroom | Pixley ka Seme LM | - | - | - | - | - | - | Clean |
| Witbank | Emalahleni LM | - | - | - | 4 000 | High phosphates | - | Clean |
| White River | Mbombela LM | - | - | - | Clean | Clean | - | Clean |

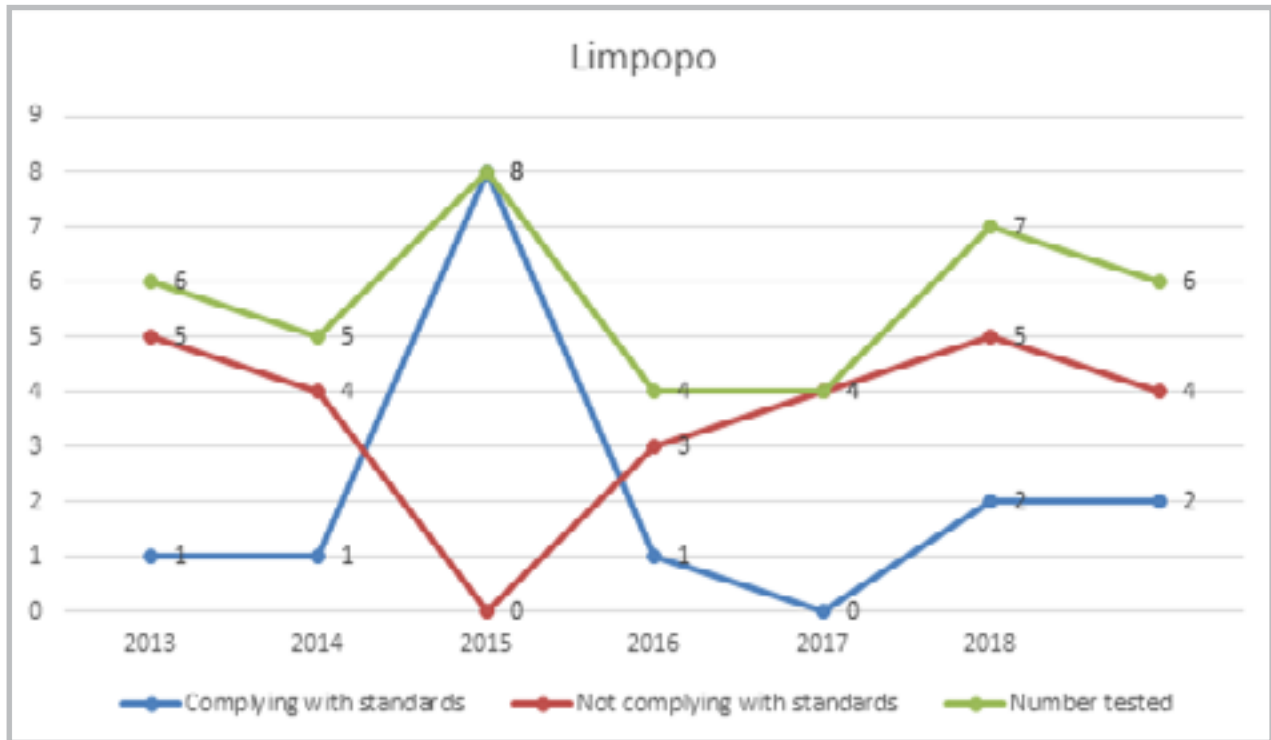


| NORTH WEST | | | | | | | | |
|-------------------|----------------------|---------|------------------|----------------|--------|---------------------------------|---|----------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Bloemhof | Lekwa- Teemane LM | - | - | - | Clean | - | >1 000 <i>E. coli</i> 1 000 faecal coliform bacteria | >1 000 |
| Brits | Madibeng LM | - | - | - | Clean | Clean | Clean | Clean |
| Buffelspoort | Madibeng LM | - | - | - | - | - | - | Clean |
| Christiana | Lekwa-Teemane LM | - | - | 3 500 | Clean | Clean | >1 000 <i>E. coli</i> 1 000 faecal coliform bacteria | >10 000 |
| Coligny | Ditsobotla LM | - | 4 <i>E. coli</i> | <i>E. coli</i> | Clean | Clean | Clean | >100 000 |
| Delareyville | Tswaing LM | - | - | - | Clean | - | - | Clean |
| Groot Mariko | Ramotshere Moiloa LM | - | - | - | - | - | - | >1 000 |
| Hartbeespoort | Madibeng LM | - | - | - | Clean | >3 000 | >10 000 <i>E. coli</i> | Clean |
| Klerksdorp | Matlosana LM | - | >40 000 | >1 000 | Clean | High phosphate counts | Clean | >1 000 |
| Koster | Kgetlengrivier LM | - | - | - | - | Clean | >5 000 <i>E. coli</i> | >1 000 |
| Lichtenburg | Ditsobotla LM | 120 000 | 59 000 | >2 000 | Clean | - | - | >50 000 |
| Makwassie | Maquassi Hills LM | - | - | - | Clean | Clean | Clean | - |
| Mooinoi | Madibeng LM | - | - | - | Clean | - | Clean | >5 000 |
| Orkney | Matlosana LM | - | - | - | Clean | - | - | - |
| Ottosdal | Tswaing LM | - | - | - | - | High phosphate counts | >1 000 <i>E. coli</i> 1 000 faecal coliform bacteria | > 10 000 |
| Potchefstroom | Tlokwe LM | Clean | Clean | Clean | - | High phosphate counts >2 000 | Clean | Clean |
| Rustenburg | Rustenburg LM | - | Clean | >1 000 | Clean | - | >4 000 <i>E. coli</i> | >5 000 |
| Sannieshof | Tswaing LM | - | - | - | - | - | >1 000 <i>E. coli</i> 1 000 faecal coliform bacteria | - |
| Schweizer- Reneke | Mamusa LM | - | - | - | - | High phosphate counts | - | >10 000 |
| Stella | Naledi LM | - | >100 000 | >1 000 | >2 000 | - | >1 000 <i>E. coli</i> | - |
| Stilfontein | Matlosana LM | - | - | - | Clean | - | Clean | >1 000 |

| NORTH WEST | | | | | | | | |
|---------------|----------------------|---------|-------|-------|--------|-----------------------|--|---------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Swartruggens | Kgetlengrivier LM | - | - | - | - | Clean | Clean | >1 000 |
| Vryburg | Naledi LM | >10 000 | Clean | Clean | Clean | High phosphate counts | >1 000 <i>E. coli</i> >1 000 faecal coliform bacteria | >1 000 |
| Wolmaransstad | Maquassi Hills LM | - | - | - | >1 000 | - | Clean | Clean |
| Zeerust | Ramotshere Moiloa LM | - | - | - | Clean | - | - | >10 000 |

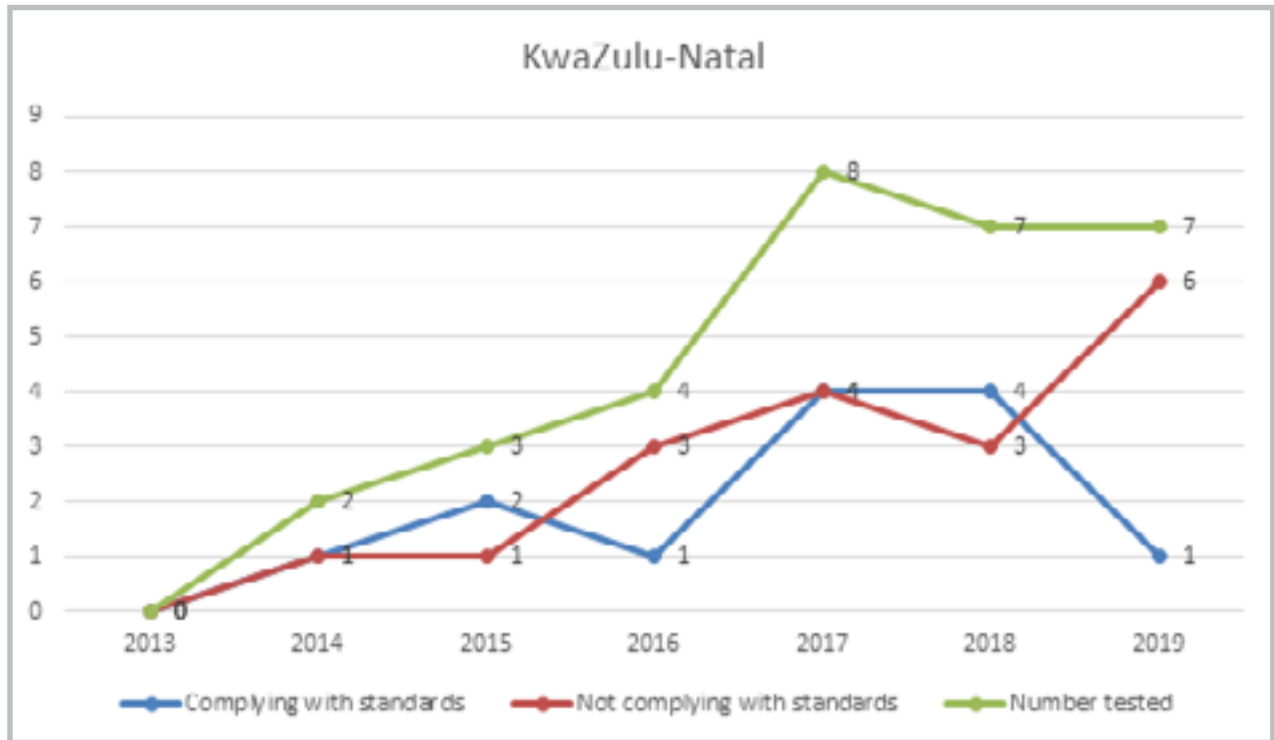


| LIMPOPO | | | | | | | | |
|---------------|---------------------|-----------|-----------|-------|--------|----------------------------------|---|--------|
| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Ellisras | Lephalale LM | - | - | - | - | High phosphate counts >15 000 | >100 000 <i>E. coli</i> >100 000 faecal coliform bacteria | >1 000 |
| Groblersdal | Elias Motsoaledi LM | - | - | - | >1 000 | - | - | - |
| Leeupoort | Thabazimbi LM | - | - | Clean | - | - | - | - |
| Marble Hall | Ephraim Mogale LM | 17 000 | Clean | Clean | - | - | - | - |
| Naboomspruit | Mookgophong LM | 1 000 000 | 1 000 000 | Clean | - | >2 500 | >100 000 <i>E. coli</i> >100 000 faecal coliform bacteria | >1 000 |
| Nylstroom | Modimolle LM | - | - | - | >1 000 | >1 000 | >100 000 <i>E. coli</i> >100 000 faecal coliform bacteria | >1 000 |
| Phalaborwa | Ba-Phalaborwa LM | 110 000 | 1 300 | Clean | 3 700 | 4 000 | >100 000 <i>E. coli</i> >100 000 faecal coliform bacteria | - |
| Pietersburg | Polokwane LM | - | 110 000 | Clean | - | - | >100 000 <i>E. coli</i> >100 000 faecal coliform bacteria | >1 000 |
| Potgietersrus | Mogalakwena LM | 1 200 | 92 000 | Clean | - | - | - | - |
| Tzaneen | Groter Tzaneen LM | Clean | - | Clean | Clean | - | Clean | Clean |
| Warmbaths | Bela-Bela LM | 1 000 000 | - | Clean | - | - | Clean | Clean |



KWAZULU-NATAL

| Location | Municipality | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------------|------------------------|------|-------|--------|-------------------------|--------|-----------------------|--------|
| Hluhluwe | The Big 5 False Bay LM | - | - | - | - | Clean | - | - |
| Ixopo | Ubuhlebezwe LM | - | - | - | - | Clean | - | - |
| Margate | Hibiscus Coast LM | - | - | - | >1 100 | >1 100 | >1 000 <i>E. coli</i> | >1 000 |
| Newcastle | Newcastle | - | - | 10 000 | >2 000 | >1 500 | >1 000 <i>E. coli</i> | >1 000 |
| Paulpietersburg | eDumbe LM | - | Clean | Clean | Water in tanks is clean | Clean | Clean | >1 000 |
| Pongola | uPongola LM | - | - | - | >1 200 | >4 200 | Clean | >2 000 |
| Utrecht | eMadlangeni LM | - | - | - | - | - | Clean | Clean |
| Richards Bay | uMhlathuze LM | - | - | - | - | - | Clean | >1 000 |
| Underberg | Kwa Sani LM | - | - | - | - | Clean | - | - |
| Vryheid | Abaqulusi LM | - | Clean | Clean | - | >2 000 | >1 000 <i>E. coli</i> | >5 000 |



National green drop results show a deterioration for 2019 of five percentage points from 47% to 52%. The deterioration with regard to pollution must be reason for concern. This deterioration is alarming and has to be put right, and drastic intervention is needed. A break down per province is even more worrying. Five (Gauteng, North West, Free State, Mpumalanga and KwaZulu-Natal) of the nine provinces today are producing more environmental pollution than a year ago. The results of the Western Cape have remained the same.

The pollution of the Vaal River is largely due to untreated or insufficiently treated municipal sewage being discharged into the river. It has been shown that 55% of the towns along

the Vaal River with sewage plants tested by AfriForum are polluting the river directly on a daily basis. Pollution on a large scale also occurs because of raw sewage running freely from manholes, canals and pumping stations into tributaries of the Vaal River and also into the Vaal River itself.

Another problem is that most of the rivers in the country are being polluted by sewage plants that are not up to standard, and water from these rivers in most cases is then again used for water purification for towns as well as for agricultural purposes.

PLAN OF ACTION

The 2019 report broached several issues with municipalities across the country who are responsible for water quality.

In 2018, AfriForum's local branches highlighted poor quality of drinking water and sewage during municipalities' public participation processes for integrated development plans. AfriForum branches also compiled action lists and submitted these lists to municipal managers to improve water quality. In this way, AfriForum is trying to ensure that municipalities will budget adequately in the coming financial year to be able to provide in the needs of the communities regarding drinking water and sewage.

The 2019 report will be used as a base study to measure the same infrastructure in the areas of all AfriForum branches in 2020.

The process of ensuring compliance includes the following:

1. A comprehensive performance record or paper trail is being established to keep record of the water quality of towns.
2. Non-compliance is addressed in letters demanding a comprehensive plan of action from the responsible authority. The municipality concerned has to indicate how and by what date it is going to meet certain requirements that are currently not met.

3. Should municipalities fail to solve the issues, legal action is taken. The possibility exists of a criminal charge being brought against the administrative official, or the route of private prosecution may be followed.
4. AfriForum furthermore is obliged to assist its members by making short-term water purification products available.
5. This report will also be submitted to the Green Scorpions for further investigation of sewage plants not complying with the requirements.
6. The 2019 report – containing seven years' blue and green drop information – will be handed to the responsible Minister to discuss and implement strategies to address these problems.
7. AfriForum branches also are going to drive self-help initiatives to enable communities themselves to solve problems caused by the state.

AfriForum believes and trusts that municipalities will co-operate to solve these important issues with a view to ensuring a safe and healthy environment for all in South Africa.

SUMMARY

Any deterioration in the quality of drinking water could be life-threatening. This risk is being aggravated because South Africa is still recovering from a serious drought, with a scarcity of water for human consumption, given the high water losses through the water reticulation infrastructure. It stands to reason that agriculture and industry should receive the major part of the country's available water for cultivation and production.

AfriForum is concerned about the management of the entire water supply chain, but even more so about the management of South Africa's treated sewage. The results of the 2019 survey indicate that there has indeed been an improvement in the quality of drinking water in South Africa. Four towns show an improvement compared to last year's report, but it still is a matter of grave concern that some towns are not getting clean drinking water. What is most concerning, however, is that all these towns are situated in North West – a clear indication of the mismanagement in North West.

However, taking into account the large number of sewage pollution complaints across the country, the green drop results do reflect some improvement in the STWs tested by AfriForum and of which historic records are kept. In light of the deterioration, the country is facing very high levels of sewage pollution as a result of the backlog in infrastructure maintenance and incompetent management. This deterioration indicates an invisible crisis threatening communities across South Africa that is now becoming visible at places, such as with the Vaal River crisis. South Africa's water resources are experiencing a serious crisis that has to be tackled at national level by the national government.

AfriForum is using several remedies to fight against the municipalities that are so badly managed, as in the case of the Rooiwal court case. Following a court case of three years, the Tshwane Metro had no option but to enter into a settlement agreement with AfriForum in February 2019 on maintenance and repairs at the Rooiwal sewage works. The Metro Council also has to bear the legal costs of this action, and the court order included a maintenance schedule for the maintenance and repairs at the Rooiwal sewage works to be carried out at specific dates. The deterioration of the Rooiwal sewage works was brought to the attention of the Metro Council by members of AfriForum, following which this civil rights organisation in October 2016 launched an urgent court application. The Metro promised to report to the court the progress made with regard to the maintenance and repairs, but failed to do so. Consequently, AfriForum had to again place the application on the roll for the order to be made final. Driving such a court case is a protracted process.

AfriForum will position itself across South Africa to use all appropriate resources to ensure that issues of water quality are addressed immediately to protect this valuable resource. Letters on non-compliance have been forwarded to municipalities, requiring immediate action not only to prevent peoples' lives being endangered but also to ensure sustainable water management. Where the minimum standards for drinking water are not maintained, AfriForum will take it up with the municipalities in question, using available remedies, including possible legal processes.

The 2019 survey will be used for monitoring the same infrastructure as well as others in the future.

"It is of cardinal importance for us to test the quality of our drinking water and sewage on a permanent and continuous basis. We have to protect this critical resource and ensure that what happened in Bloemhof in 2014 is not repeated." — AfriForum's Lambert de Klerk, Environmental Affairs Manager

