

# BLUE AND GREEN



# DROP PROJECT REPORT



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The blue and green drop project forms part of AfriForum Community Sustainability's  
#CleanWater initiative.

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# INTRODUCTION

## The facts

It is a well-known fact that South Africa is a water-scarce country.<sup>1</sup> Pollution, extreme weather conditions and the dire state of drinking water and sewage infrastructure, together with a growing demand for water, are putting increasing pressure on the supply of clean drinking water.

The mismanagement of the country's water resources has reached a critical point, with residents facing serious health risks and suffering owing to the lack of water. The symptoms of this can be seen everywhere: numerous towns experiencing water shortages for weeks and even months; the daily pollution of rivers with raw sewage flowing freely from manholes, broken pumping stations and malfunctioning sewage waste-water treatment works (SWWTW); and the unfortunate and worrying result of this – the outbreak of cholera in May 2023 in the Free State and Gauteng, which resulted in the death of 47 people.<sup>2</sup> In addition, the government's failure to act quickly and decisively and large-scale corruption are further challenges thwarting the proper resolution of the crisis.

South Africa is not unique in the water challenges we face, but we will have to think anew about our use and management of water, before the shortage of water forces us to do so. Despite our water scarcity, the average South African water use is 235 litres per capita per day (ℓ/c/d), much higher than the world's average water use of 180 ℓ/c/d.<sup>3</sup> In 2018 the Western Cape, and Cape Town in particular, was forced to introduce drastic water restrictions of 50 ℓ/c/d. It is also unacceptable that 46,4% of the drinking water available to municipalities is lost at national level as a result of leaks in the distribution network.<sup>4</sup> Therefore, we need to find proactive solutions to meet the extraordinary challenges we are facing in regard to the sustainable management of water resources.

AfriForum is playing an increasingly important role in finding these solutions and in enabling communities to protect themselves against poor public service delivery, especially with regard to the provision of water. Several AfriForum branches have already set up emergency water points where clean drinking water is made available from private sources, and municipal boreholes are repaired in times of crisis to

improve water supply. These solutions bring essential short-term relief to places experiencing water shortages, and AfriForum's branches are encouraged to act proactively and develop emergency water plans for their towns.

Furthermore, AfriForum is committed to research on and the pursuit of independent solutions and the privatisation of water systems under the supervision of the state (as custodian of the country's water resources). For example, techniques and methods must be found to use water for multiple purposes. The same 1 litre of water of drinking water quality that is sent to consumers cannot be wasted by using it only once and then simply flushing it away – it must have an appropriate second and third use function.



Figure 1: An emergency water point set up by an AfriForum branch

<sup>1</sup> Centre for Environmental Rights. 2018. *Development, health and well-being depend on water: Why we must secure our water source areas now*. Available at [https://cer.org.za/wp-content/uploads/2017/11/CER\\_Water-Source-Book\\_WEB-Version.pdf](https://cer.org.za/wp-content/uploads/2017/11/CER_Water-Source-Book_WEB-Version.pdf). Accessed on 12 October 2023.

<sup>2</sup> South African Government News Agency. 2023. Cholera death toll rises to 47 after four new fatalities recorded. 5 July. Available at <https://www.sanews.gov.za/south-africa/cholera-death-toll-rises-47-after-four-new-fatalities-recorded>. Accessed on 12 October 2023.

<sup>3</sup> Department of Water and Sanitation. 2017. *Benchmarking of water loss, water use efficiency and nonrevenue water in South African municipalities (2004/05 to 2015/16)*. Available at <https://africacheck.org/sites/default/files/National-benchmark-2017-09-12-final.pdf>. Accessed on 12 October 2023.

<sup>4</sup> Department of Water and Sanitation. 2023. *No drop watch report 2023*. Available at <https://ws.dws.gov.za/IRIS/releases/NDWR.pdf>. Accessed on 12 October 2023.

## The law

The Constitution of South Africa provides in section 24 for an environment that is not harmful to the health or well-being of people. It seeks to preserve the environment for present and future generations and to prevent pollution or ecological degradation from occurring. It aims to promote environmental conservation and ecologically sustainable development.

Section 27(1)(b) states that everyone has the right to access to sufficient water and that this right must be progressively improved.

Pursuant to section 156 and Part B of Schedule 4 of the Constitution, municipalities have the executive authority over and the right to administer water and sanitation services. This right is limited to drinking water distribution and local waste-water and sewage disposal systems.

At national level, the Department of Water and Sanitation (DWS) is responsible for managing and developing water supply and water resources.

## AfriForum's blue and green drop project

The health of natural water resources has a major impact on the provision of drinking water that meets the quality standards for safe human consumption.

AfriForum's #CleanWater initiative was born in 2013 from the void left after the DWS stopped publishing national blue and green drop test reports. With the DWS's national blue drop tests, a comprehensive risk analysis of the entire

country's drinking water works is undertaken, while green drop tests are an in-depth audit of all SWWTW. Before the DWS again published a national green drop report and a blue drop progress report (which rated the risk of water supply systems) in 2022 and for the first time since 2012, and more recently published further interim blue and green drop reports in 2023, the DWS had not released official national blue and green drop results for almost a decade.

Without reliable information about the quality of South Africa's drinking and sewage water, AfriForum was forced during this period to launch its own, independent blue and green drop project to monitor the quality of drinking water (blue drop) and treated sewage water (green drop). For this purpose, an annual, nationwide sampling of tests was undertaken to give communities an indication of whether drinking and sewage water meets legal standards and therefore whether there are any health risks. In this way, AfriForum promoted the pursuit of positive change in the management of water infrastructure and resources, as well as holding the officials involved accountable.

Furthermore, the sustained pressure that AfriForum applied to the DWS year after year through the blue and green drop project also contributed to the resumption and publication of the DWS's official national blue and green drop tests. Although the DWS has resumed its national blue and green drop project, AfriForum's annual independent blue and green drop test report remains relevant, because the results of this can be compared with the DWS's official results. AfriForum thereby fulfils an important watchdog function through which further pressure can be applied to the DWS and municipalities to call them to account.



# METHODOLOGY

## Test kit

The test kit that is used for AfriForum's blue and green drop tests was developed in collaboration with accredited specialist water experts and researchers of the companies iWater Solutions and iLab. It is designed for non-scientific users to perform a basic, indicative determination of water quality. AfriForum strives to improve and refine the tests every year. The test kit used in 2023 contains the following six components, each with a shelf life of up to two years:

- 6-in-1 chemical test strip
- Phosphate test strip
- Nitrate/nitrite test strip
- Metal test strip
- Petrifilm (*E. coli* or coliform count plate)
- Aqua screen

Each test kit also comes with a complete instruction manual to ensure that tests are performed correctly and samples are handled and stored correctly.

This test kit presents an easy way to test for the presence or absence of the following chemical and bacteriological components, indicating whether the water can be safe for human consumption or harmful for the environment:

- Chemical components:
  - Total hardness
  - Total chlorine
  - Free chlorine
  - Bromine
  - Total alkalinity
  - Nitrate
  - Nitrite

- Phosphates
- Metals
- Microbiological components:
  - *E. coli*<sup>5</sup>
  - Fecal coliform bacteria
  - Coliform bacteria



Figure 2: AfriForum's test kit to test water quality

## Sample

Community projects such as the blue and green drop project are carried out by AfriForum's network of 161 branches across the country. Participation in the blue and green drop project is voluntary, but as before, all branches nationwide have been requested to take water quality samples from their municipal drinking water as well as the discharge of treated sewage from their local SWWTW. AfriForum's branches informed their local municipalities about the project in advance and requested their permission and cooperation.

<sup>5</sup> In terms of the SANS 241:2015 *National Standard for Drinking Water*, no *E. coli* in drinking water is allowed.



Figure 3: AfriForum's Marais de Vaal and Lambert de Klerk conducting blue drop tests at Warmbad Primary School

### Taking and handling of water samples

To ensure that the correct test protocols are followed when taking and handling water samples, AfriForum's branch representatives were assisted, and where necessary accompanied by AfriForum's coordinators and various other stakeholders, including municipal officials, the media and service providers. Participants had direct access to specialist water experts from iWater Solutions and iLab through a WhatsApp group to provide assistance. Participants were also encouraged to take photos of the various test steps as evidence and in this way increase the project's credibility.

### Reporting of test results

AfriForum, in collaboration with iWater Solutions and iLab, developed an online platform on which participants record all the test results. Test results are analysed by the platform

and if the permissible limits of any of the components of safe drinking water or treated sewage respectively have been exceeded (see below), it is automatically marked as "unsafe". After that, the marked test results are manually checked and verified. If verification of a drinking water result confirms that it is "unsafe", branches are advised to take a further water sample for comprehensive laboratory analysis so that appropriate remedial steps can be taken in collaboration with the municipality concerned.

### Criteria for safe drinking water and treated sewage

- Drinking water

The criteria against which the safety of drinking water is tested are determined by the SANS 241:2015 National Standard for Drinking Water.

Table 1: Key components for safe drinking water<sup>6</sup>

TEST	SAFE	UNSAFE
Petrifilm: E. coli	No blue spots	One or more spots/colonies
Petrifilm: Coliforms	Fewer than 2 red spots	More than 2 red spots
Aqua Screen	Water remains yellow in colour	Water becomes a black colour
Nitrite	Fewer than 1 ppm	More than 1 ppm
Nitrate	10 ppm or less	20 ppm and more
Phosphate	10 ppm or less	25 ppm and more
pH	Between 6 and 9	Less than 6 or more than 9

Blue drop results that meet the relevant limits for safe human use are indicated in the results as “**Safe**”, but if one or more of the relevant limits are exceeded, they are indicated as “**Unsafe**”.

- Treated sewage

The criteria against which the safety of treated sewage is tested are determined by the “General authorisation for the discharge of waste, or water containing waste, into a water resource” issued under section 39 of the National Water Act (Act 36 of 1998).<sup>7</sup> Note that the general authorisation is only used as a minimum guideline, because each sewage waste-water treatment works in terms of the National Water Act must have a water use licence in which more specific requirements than the general authorisation may be set.

Table 2: Key components for safe treated sewage<sup>8</sup>

TEST	POLLUTED
E. coli and total coliforms	10 or more red and blue spots
pH	Less than 6 or more than 9
Phosphate	25 ppm and above
Nitrate	20 ppm and above

Green drop results that meet the relevant limits for treated sewage discharged into a water resource are indicated in the results as “**Clean**”, but if one or more of the relevant limits are exceeded, they are indicated as “**Polluted**”.

<sup>6</sup> i-Lab. S.a. *Watertoetsstel: Basiese toetsstel vir nie-wetenskaplike veldwerkers*. Printed manual. Available at AfriForum.

<sup>7</sup> Department of Water and Environmental Affairs. 2013. *Revision of general authorisations in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998)*. Available at <https://cer.org.za/wp-content/uploads/2014/02/Revision-of-General-Authorisations-2013.pdf>. Accessed on 12 October 2023.

<sup>8</sup> i-Lab. S.a. *Watertoetsstel: Basiese toetsstel vir nie-wetenskaplike veldwerkers*. Printed manual. Available at AfriForum.





Figure 4: Testing the discharge from a SWWTW

# RESULTS

## AfriForum's blue drop results

An overview of the 2023 blue drop results is presented in this section. The complete blue drop results are detailed in Schedule 1.

During August 2023, the quality of municipal drinking water of **193** towns and cities across the country was tested by AfriForum. At national level, **96%** (185 out of 193 tests) of the blue drop tests indicate that municipal drinking water is **safe** for human consumption.

The top performing provinces, each with 100% of tests indicating that municipal drinking water is **safe** for human consumption, are:

- Limpopo (13 tests)
- North West (24 tests)
- Northern Cape (14 tests)
- Eastern Cape (9 tests)
- Western Cape (35 tests)
- Gauteng (24 tests)

In addition, the Northern Cape's results show an improvement over 2022, when the results indicated that Kuruman and Upington's drinking water was unsafe, but the 2023 results show that both towns' drinking water is safe.

The provinces where test results indicated that municipal drinking water is **unsafe** are:

- Mpumalanga, where only 86% of tests (30 out of 35 tests) indicated that drinking water is safe, or 14% of tests (5 out of 35 tests) indicated that municipal drinking water is unsafe. This is a notable weakening compared to the preceding four years of tests, because previously no unsafe results were recorded in Mpumalanga.

The towns where blue drop tests indicated that drinking water is **unsafe** are:

- Amersfoort (Pixley Ka Seme LM)
  - Barberton (Mbombela LM)
  - Breyten (Msukaligwa LM)
  - Morgenzon (Lekwa LM)
  - Sabie (Thaba Chweu LM)
- Free State, where 93% of tests (25 out of 27 tests) indicated that drinking water is safe, or 7% of tests (2 out of 27 tests) indicated that municipal drinking water is unsafe.

The towns where blue drop tests indicated that drinking water is **unsafe** are:

- Koppies (Ngwathe LM)
  - Parys (Ngwathe LM)
- KwaZulu-Natal, where 92% of tests (11 out of 12 tests) indicated that drinking water is safe, or 8% of tests (1 out of 12 tests) indicated that municipal drinking water is unsafe.

The town where blue drop tests indicated that drinking water is **unsafe** is:

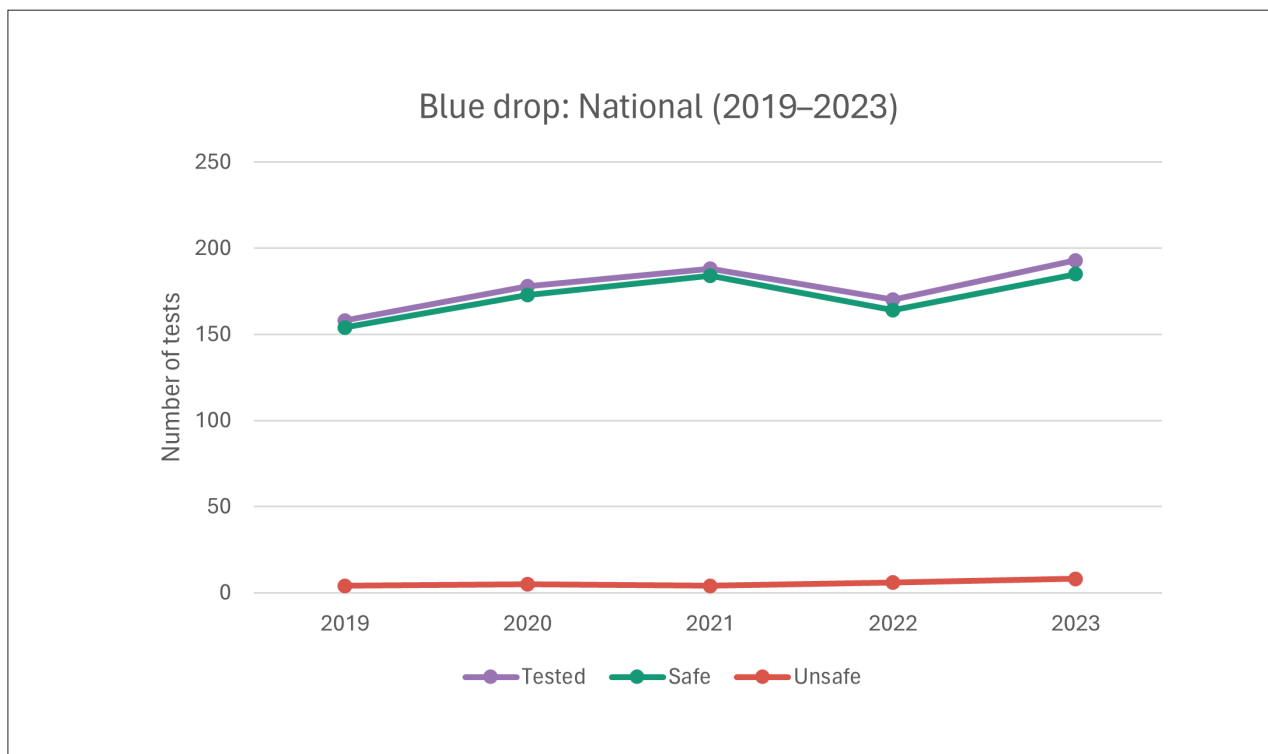
- Vryheid (Abaqulusi LM)

A summary of the results per province is shown in Table 3 and the maps in Figure 5 and Figure 6 below.

Table 3: Blue drop results by province

PROVINCE	Number of tests	Number safe	Number unsafe	% Safe	% Unsafe
Limpopo	13	13	0	100%	0%
Gauteng	24	24	0	100%	0%
Mpumalanga	35	30	5	86%	14%
Free State	27	25	2	93%	7%
North West	24	24	0	100%	0%
KwaZulu-Natal	12	11	1	92%	8%
Northern Cape	14	14	0	100%	0%
Eastern Cape	9	9	0	100%	0%
Western Cape	35	35	0	100%	0%
<b>National</b>	<b>193</b>	<b>185</b>	<b>8</b>	<b>96%</b>	<b>4%</b>

The blue drop results from 2019–2022 are also included in this report so that they can be compared with the 2023 results. Results from previous years (2013–2018) can be made available on request. In Graph 1 the blue drop results of the past five years (2019–2023) are indicated.



Graph 1: Blue drop (drinking water) results for 2019–2023

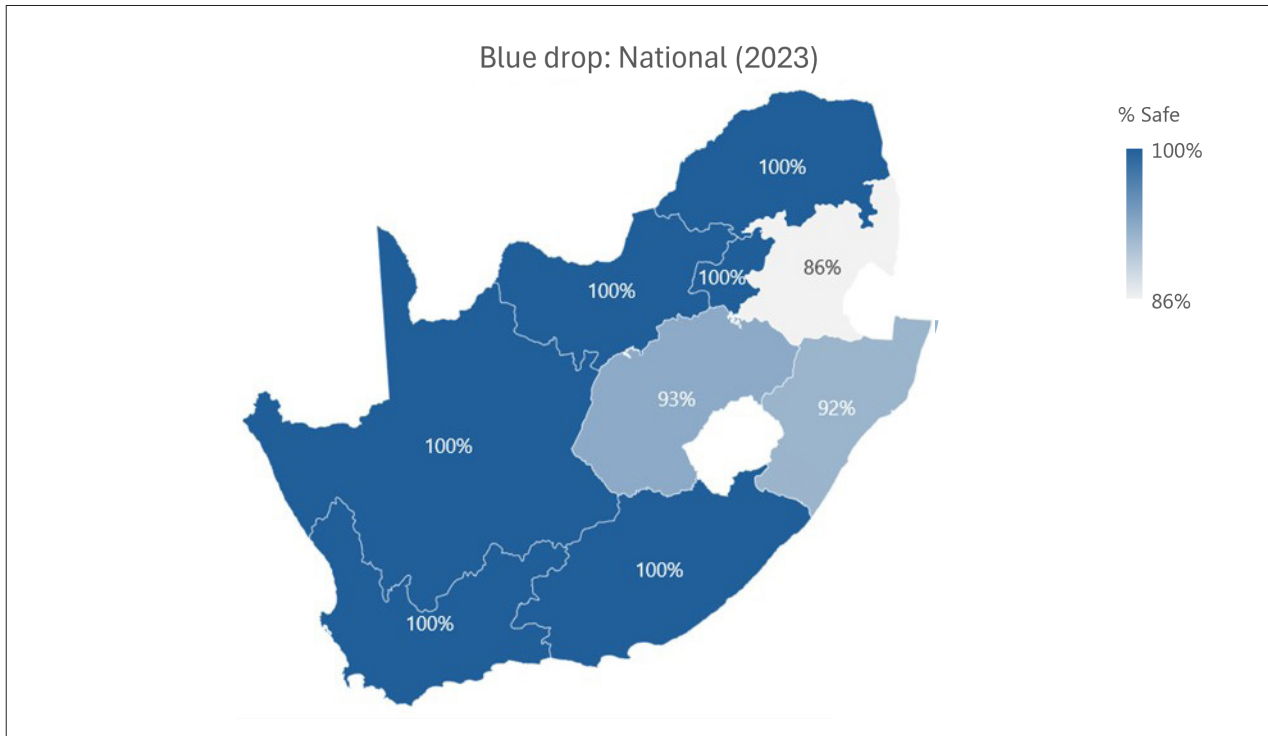


Figure 5: % Blue drop tests per province indicating **safe** drinking water

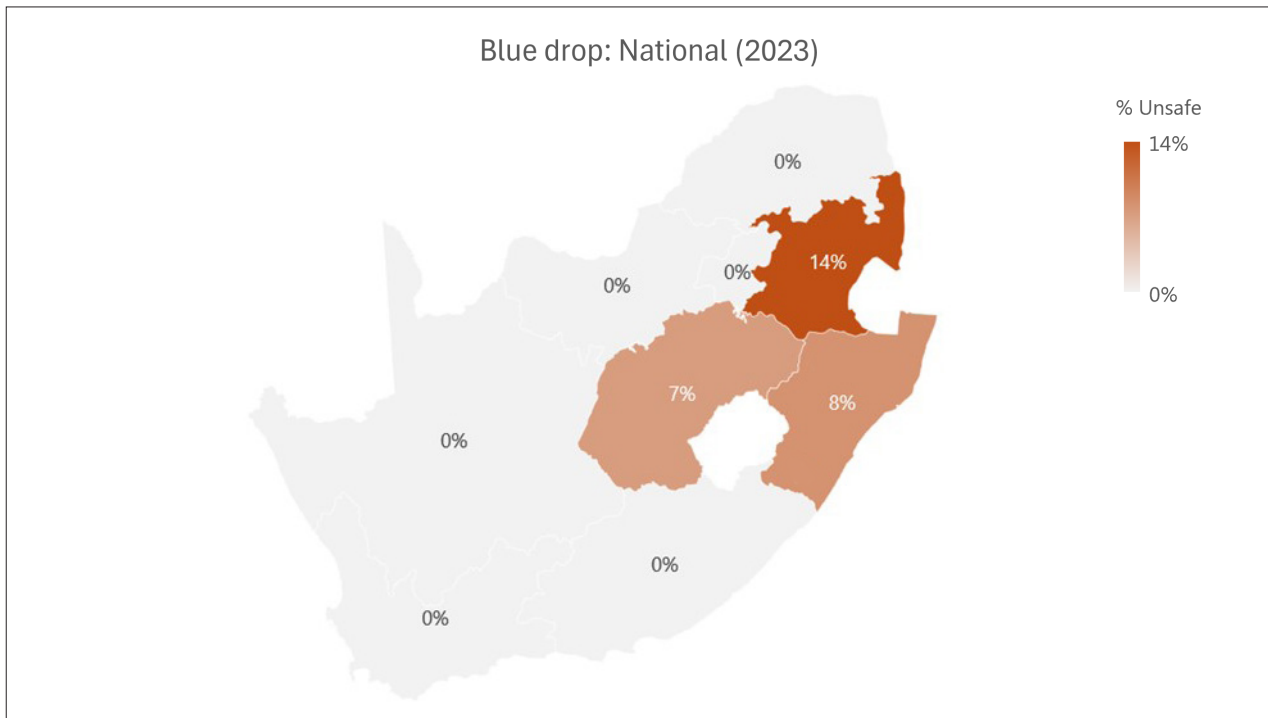


Figure 6: % Blue drop tests per province indicating **unsafe** drinking water

## Comparison with DWS's blue drop results

The DWS's interim blue drop report released in June 2023 shows the following results in respect of a sample of 151 water supply systems (WSS) that were assessed:<sup>9</sup>

- The findings reflect an overview of WSS owned and managed by 140 municipalities and 26 water boards and bulk water suppliers.
- An average technical site assessment (TSA) of 69% was achieved, indicating that the infrastructure and process are partially functional and performing on average.
- Out of the 151 WSS, 128 (85%) are in an average, good and excellent condition, while 23 (15%) are in a poor and critical condition.
- The water systems that generally performed the best are in Gauteng, the Western Cape and the Eastern Cape.
- The water systems that are in a critical state are in the Free State, Limpopo, the Northern Cape and North West.
- The cost estimate to repair or refurbish these dysfunctional systems amounts to R1,5 billion, the major part of which must be used by the Free State and KwaZulu-Natal.
- Drinking water quality analyses indicate that 38% and 11% of the systems have an excellent or good microbiological quality, respectively, while 51% of the systems have a poor or bad microbiological water quality status. In terms of chemical quality, 16% and 14% of the systems were of excellent and good water quality, respectively, while the vast majority (71%) failed to

achieve acceptable chemical quality standards.

- 13 WSS did not report any water quality data, or no data was uploaded or available at the time of the audit to enable quality analyses.

It is worth noting that the DWS's blue drop results indicate bigger problems in relation to non-compliance with drinking water quality standards than AfriForum's blue drop results. This can possibly be attributed to the fact that the DWS's analysis was more comprehensive than AfriForum's blue drop tests, which only give an indication of water quality in respect of the most critical components from an acute health point of view.

## AfriForum's green drop results

An overview of the 2023 green drop results is presented in this section. The complete green drop results are detailed in Schedule 2.

During August 2023, the quality of the discharge of **140** SWWTW across the country was tested by AfriForum's branches. Attempts were made to undertake green drop tests at a further five SWWTW, but this was unfeasible because:

- access to the Marble Hall, Gansbaai and Hermanus works was refused, although the local authority's permission was requested;
- Bethal's works are inactive and sewage flows through the plant without being treated at all before being discharged into the Blesbokspruit; and
- no treated sewage flows out of Senekal's works.

<sup>9</sup> Department of Water and Sanitation. 2023. *Blue drop watch report 2023*. Available at <https://ws.dws.gov.za/IRIS/releases/BDWR.pdf>. Accessed on 12 October 2023.



Figure 7: Warmbad's SWWTW during AfriForum's green drop visit for 2023

At national level, the green drop results indicate that only **19%** (26 out of 140) of SWWTW's effluent meet the minimum standards for discharge into a water resource. The vast majority (**81%**, or 114 out of 140) of SWWTW's effluent is not up to standard.

The simple conclusion that can be drawn from this is that these SWWTW do not function properly and the effluent that is discharged into rivers is polluted with bacteria and/or chemicals that pose serious health risks. This is a huge problem because in most cases the polluted water of these rivers has to be reused further downstream to supply towns with drinking water or for agricultural purposes.

The worst performing provinces, where there were **no** green drop tests indicating that treated sewage did meet the standards, are:

- Eastern Cape (6 tests)
- Free State (15 tests)

Even in the Western Cape, which performed best with 48% of green drop tests indicating that treated sewage was up to standard, the majority did not meet the standard. What is worth noting is the huge gap between the Western Cape and the other provinces: the second best result was achieved in KwaZulu-Natal, where only 20% of the results (2 out of 10 tests) indicated that treated sewage met the standard, followed by North West in third place, where treated sewage met the standard in only 17% of cases (4 out of 23 tests).

A summary of the results per province is given in Table 4 and the maps in Figure 8 and Figure 9 below.

Table 4: Green drop results per province

PROVINCE	Number of tests	Number clean	Number polluted	% Clean	% Polluted
Limpopo	10	1	9	10%	90%
Gauteng	15	1	14	7%	93%
Mpumalanga	16	1	15	6%	94%
Free State	15	0	15	0%	100%
North West	23	4	19	17%	83%
KwaZulu-Natal	10	2	8	20%	80%
Northern Cape	12	1	11	8%	92%
Eastern Cape	6	0	6	0%	100%
Western Cape	33	16	17	48%	52%
<b>National</b>	<b>140</b>	<b>26</b>	<b>114</b>	<b>19%</b>	<b>81%</b>

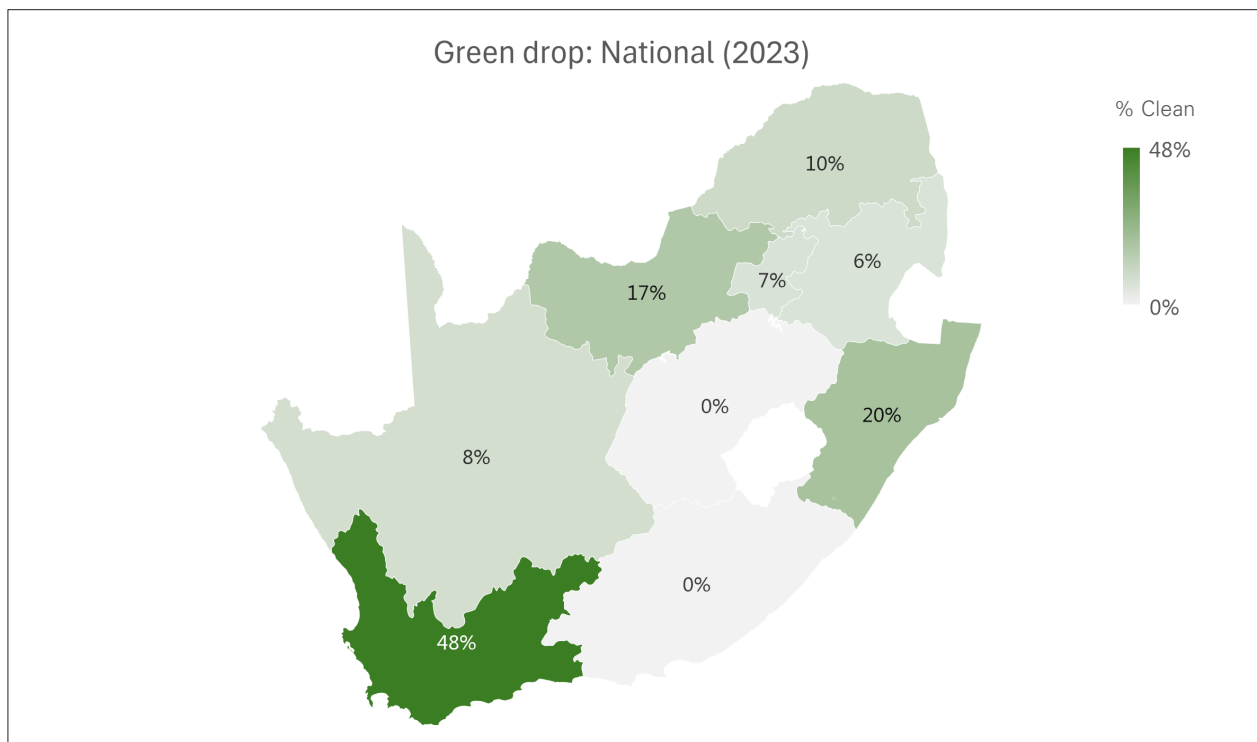


Figure 8: % Green drop tests per province indicating **clean** treated sewage

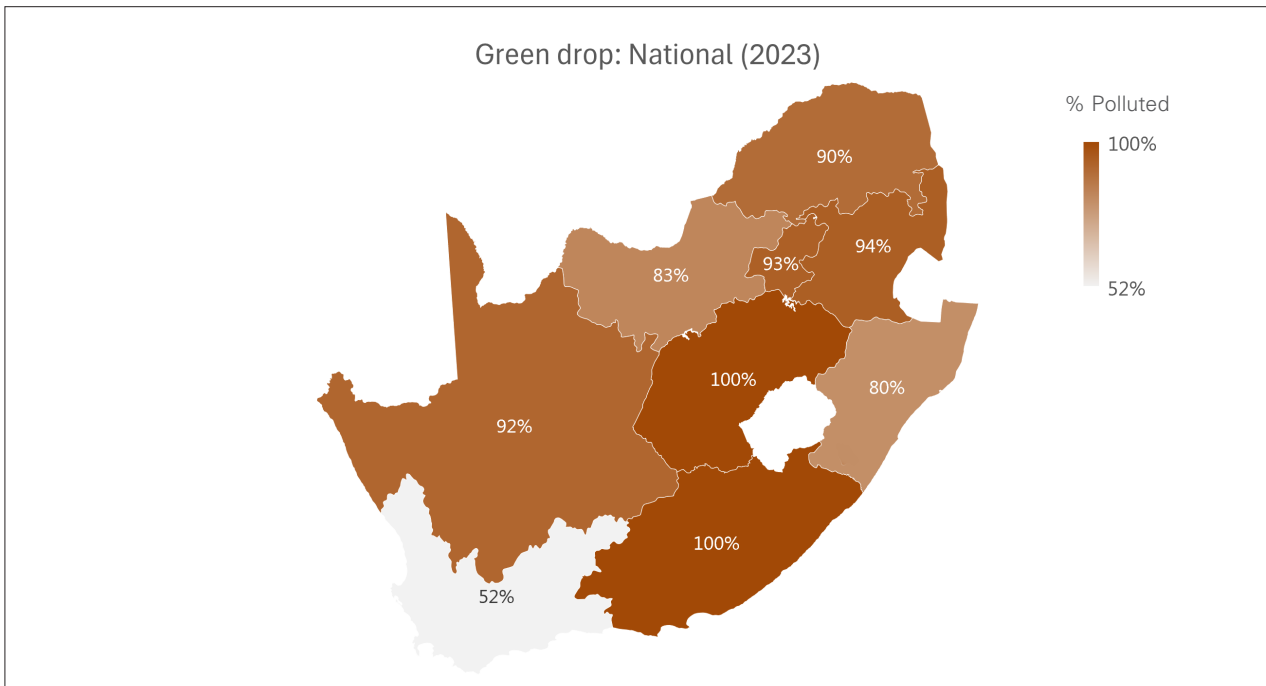
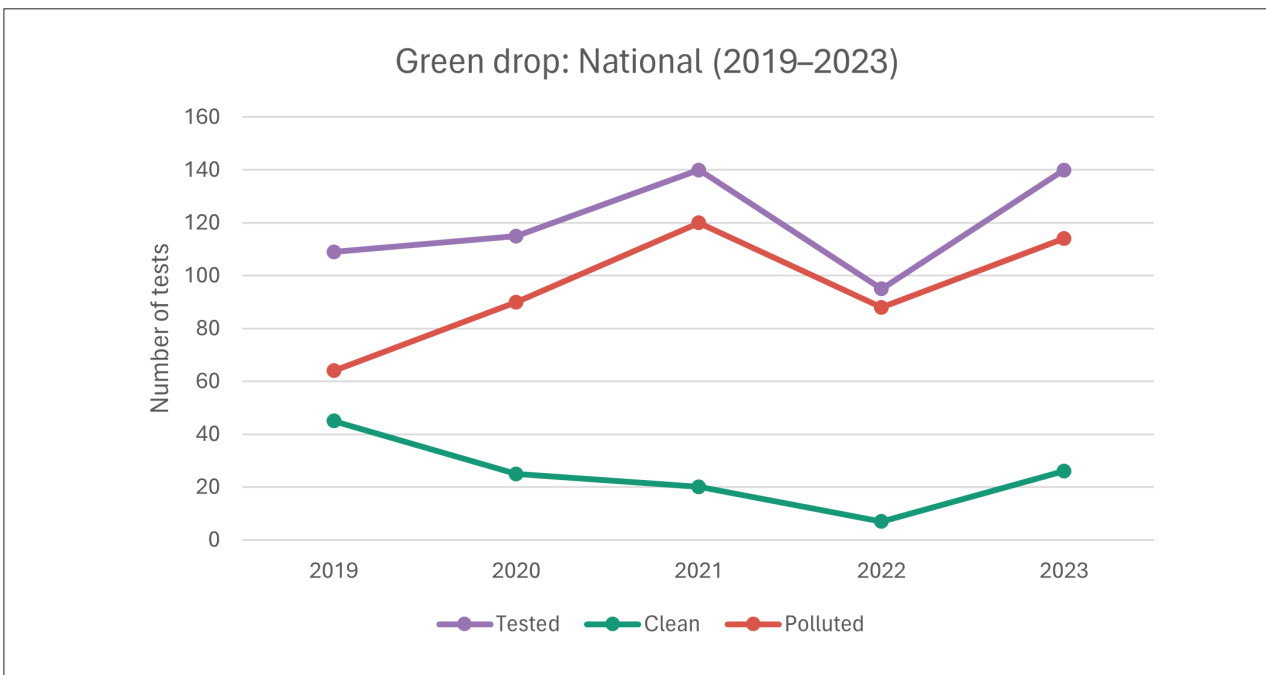


Figure 9: % Green drop tests per province indicating **polluted** treated sewage

The green drop results from 2019–2022 are also included in this report so that they can be compared with the 2023 results. Results from previous years (2013–2018) can be made available on request. In Graph 2 the green drop results of the past five years (2019–2023) are indicated.



Graph 2: Green drop (sewage water) results for 2019–2023



Although it is not clearly visible from Graph 2 above, because significantly fewer green drop tests were carried out in 2022 (95 tests) than in 2021 and 2023 (140 tests each) which skewed the graph, the 2023 results only indicate the third worst performance during the last five years. The percentages of tests that did not meet the standard in the previous years are:

- 2019: 59%
- 2020: 78%

- 2021: 86%
- 2022: 93%
- 2023: 81%

However, it is clear that in the last five years there has been little, if any, improvement in the performance of SWWTW in South Africa and that they are still very poorly run.



## COMPARISON WITH DWS'S GREEN DROP RESULTS

The DWS's interim green drop report released in June 2023 shows the following results in respect of a sample of 334 municipal SWWTW (out of a total of 850 works across the country) that were assessed:<sup>10</sup>

- All 334 municipal SWWTW, spread across all nine provinces, were declared in critical condition in 2022 and received green drop scores below 31%.
- The worst-performing provinces, with the largest number of works in critical condition, are:
  - Limpopo (78% of works)
  - Northern Cape (76% of works)
  - North West (69% of works)
  - Free State (67% of works)
- The municipalities where these works are located have been placed under regulatory observation in terms of the Water Services Act (Act 108 of 1997).
- The DWS sent non-compliance letters to each of the 334 water service institutions involved. In turn, only 168 of the 334 water service institutions have submitted "corrective action plans" to the DWS. Of these, 43 water service authorities requested support from the DWS and a mere 34 of the 168 "corrective action plans" were implemented at the time of the release of the interim

green drop report. The others are either in the planning phase or have reported no progress.

- Some of the challenges that the DWS has identified that have a negative effect on the improvement of these SWWTW include, among other things, funding restrictions, vandalism and theft, lack of cooperation from municipalities, and ongoing deterioration of infrastructure.

Despite these alarming findings, Senzo Mchunu, Minister of Water and Sanitation, said that he was nevertheless encouraged by the 2022/23 report. This after municipalities had already been warned in 2022 to get their proverbial houses in order and start immediately with maintenance and renovation work. As the report points out, the number of municipalities that did comply with the request a year later is not nearly enough to produce a real improvement. This only further emphasises the government's denial of the seriousness of the crisis and its unwillingness to act decisively to solve it.

AfriForum's 2023 green drop results also reflect this gloomy outlook regarding South Africa's extremely deficient sewage management. Given the DWS's green drop results that each of the 334 SWWTW are in a critical condition, with essential repairs not being done, it is expected that the pollution of water resources with untreated sewage will increase even further in the future, unless urgent and drastic action is taken.

<sup>10</sup> Department of Water and Sanitation. 2023. *Green drop watch report 2023*. Available at <https://ws.dws.gov.za/IRIS/releases/GDWR.pdf>. Accessed on 12 October 2023.

## ACTION PLAN

AfriForum has been undertaking its independent blue and green drop project for ten years, since 2013. Therefore, AfriForum has a database of valuable, first-hand data and this makes AfriForum an important player in discussions and research on the state of South Africa's drinking water and sewage water quality.

Through AfriForum's blue and green drop report, the public is equipped with knowledge about their local conditions, which contributes to transparency and an informed and active citizenry. AfriForum's branches are encouraged to launch do-it-yourself projects so that communities themselves can solve problems caused by poor municipal service delivery.

Since the DWS resumed the official, national blue and green drop project in 2022, AfriForum's approach is to fulfil a monitoring and watchdog function.

In this way, AfriForum gains an opportunity to engage in dialogue with the government in different ways:

- During the launch of the project, municipalities are requested to cooperate with AfriForum.
- Municipalities that have not met the relevant drinking and sewage water quality standards will be notified in writing. These municipalities will be requested to submit comprehensive action plans, indicating how and by what date steps will be taken to meet the relevant quality standards.
- At the same time, AfriForum will, as far as possible, draw up action lists to improve water quality and will submit these lists to municipal managers.
- With the introduction of the results contained in this report, AfriForum will make a request to the Minister of Water and Sanitation to call a meeting to –
  - discuss the findings of the report;

- request the minister to disclose which municipalities that have received directives have still not complied with them; and
- request the minister to urgently call to account those municipalities that have been polluting our water sources for years.

To promote compliance, the following is done:

- AfriForum will consider legal action against municipalities that fail to resolve the problems. The possibility even exists that criminal charges may be filed against the administrative officials, and the route of private prosecution may be followed.
- Where municipalities fail to rectify problems in respect of defective SWWTW, these results are handed over to the Green Scorpions for further investigation and possible prosecution.

In 2024, AfriForum's blue and green drop results for 2023 regarding poor drinking and sewage water quality will again be brought to the attention of the municipalities concerned, as before, during the public participation process for integrated development plans (IDP). In this way, AfriForum wants to ensure that municipalities budget sufficiently in the coming financial year to efficiently manage drinking and sewage water infrastructure and services.

AfriForum aims to improve the quality and scope of the blue and green drop project every year. The 2023 report will be used as a standard to build on in 2024.

We trust that government, from national to local level, will cooperate to resolve these important issues in order to ensure a safe, healthy environment for all in South Africa.

## SUMMARY

The blue and green drop results for 2023 give AfriForum cause for concern about the overall state of the management of the total water supply chain in South Africa.

The 2023 blue drop results show that while municipal drinking water is mostly safe for human consumption, with 96% of all blue drop tests at the national level being up to standard, the drinking water of eight towns did not meet the standards for safe drinking water. These results are comparable to AfriForum's blue drop results from previous years. Drinking water that does not meet the appropriate standards can be life-threatening, and any weakening in the management of drinking water systems increases the risk of South Africans being exposed to unsafe drinking water.

It is important to note that drinking water samples were only taken in places where AfriForum has branches and that the results only apply in respect of the time at which the sample was taken.

The 2023 green drop results indicate the alarming state of the (mis)management of South Africa's treated sewage wastewater. Compared to AfriForum's green drop results from the previous two years, there was no significant change in the total percentage of treated sewage samples that did not meet the relevant standards. Only 19% of the treated sewage samples met the relevant standards in 2023, which means that the water discharged by SWWTW into rivers received insufficient treatment (if at all) in 81% of cases.

The extent of sewage pollution that occurs across South Africa can be attributed to a lack of efficient infrastructure maintenance and management. A further problem that is increasingly occurring, especially in Gauteng's metro areas, is that existing SWWTW do not have sufficient capacity to treat rising volumes of sewage. As a result, more and more sewage is discharged into rivers without treatment.

South Africa is a water-poor country, that is also facing a period of drought, and the availability of water for human consumption is extremely limited. The pollution of natural water sources with sewage puts further pressure on struggling drinking water systems that must treat this polluted water, at higher costs, to safe standards. This situation is exacerbated by high water losses in drinking water distribution infrastructure even before it reaches end users. That is why AfriForum wants to emphasise that a water crisis is threatening communities across South Africa, which has already become a life-threatening reality in places. This is a serious crisis that should be dealt with at national level by the national government, but which unfortunately is being handled without the necessary seriousness.

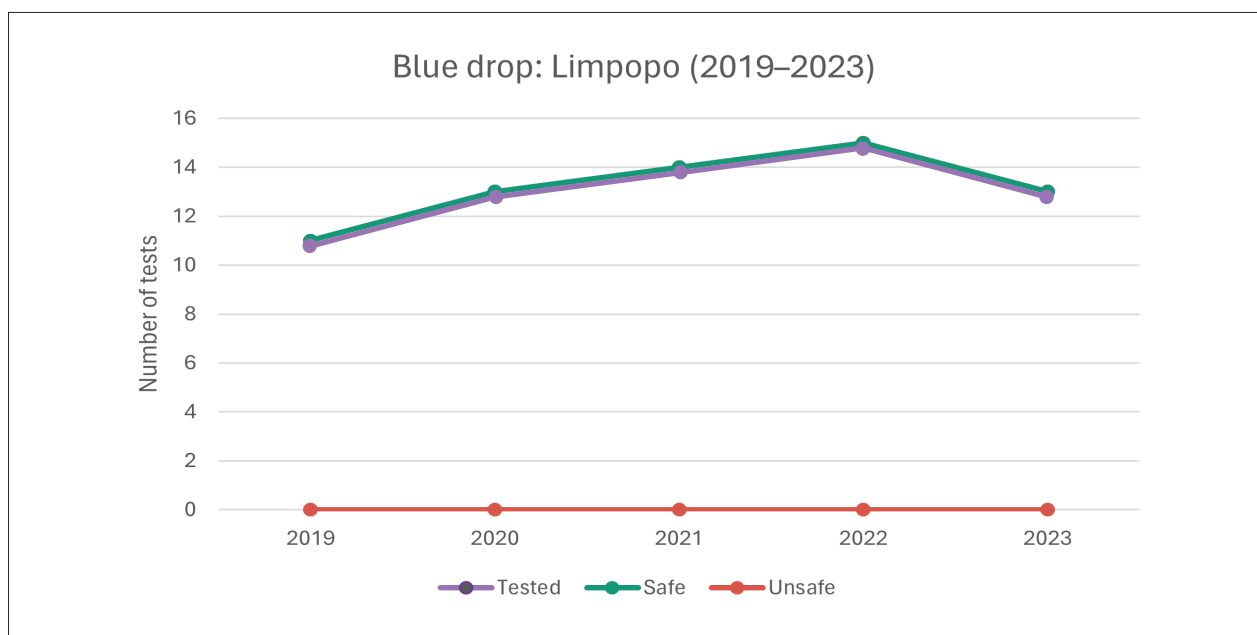
AfriForum will continue unceasingly to protect this vital resource at all costs, by ensuring that action plans are implemented by branches across the country and that all appropriate remedies are used to ensure that urgent attention is given to problems regarding the quality of drinking water and sewage.



# SCHEDULE 1: COMPLETE BLUE DROP RESULTS (2019–2023)

Table 5: Blue drop results for Limpopo (2019–2023)

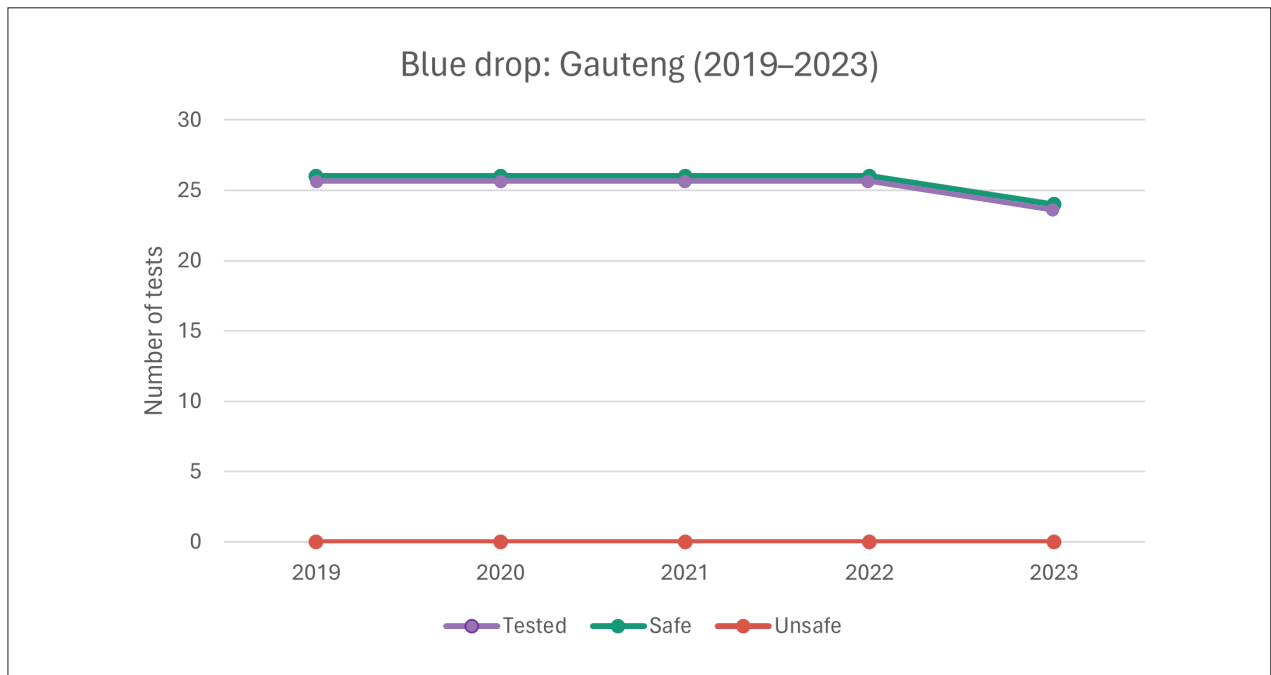
Town	Municipality	2019	2020	2021	2022	2023
<b>LIMPOPO</b>						
Ellisras	Lephalale LM	Safe	Safe	Safe	Safe	Safe
Groblersdal	Elias Motsoaledi LM	Safe	Safe	Safe	Safe	Safe
Haenertsburg	Greater Tzaneen LM	Safe	Safe	Safe	Safe	
Hoedspruit	Maruleng LM				Safe	Safe
Marble Hall	Sekhukhune DM	Safe	Safe	Safe	Safe	Safe
Musina	Musina LM			Safe	Safe	Safe
Naboomspruit	Mookgophong – Modimolle LM	Safe	Safe	Safe	Safe	Safe
Nylstroom	Mookgophong – Modimolle LM	Safe	Safe	Safe	Safe	Safe
Phalaborwa	Ba-Phalaborwa LM	Safe	Safe	Safe	Safe	Safe
Pietersburg	Polokwane LM	Safe	Safe	Safe	Safe	Safe
Potgietersrus	Mogalakwena LM		Safe	Safe	Safe	Safe
Roedtan	Mookgophong – Modimolle LM		Safe	Safe	Safe	
Thabazimbi	Thabazimbi LM	Safe	Safe	Safe	Safe	Safe
Tzaneen	Greater Tzaneen LM	Safe	Safe	Safe	Safe	Safe
Warmbad	Bela-Bela LM	Safe	Safe	Safe	Safe	Safe
	Tested	11	13	14	15	13
	Safe	11	13	14	15	13
	Unsafe	0	0	0	0	0



Graph 3: Blue drop results for Limpopo (2019–2023)

Table 6: Blue drop results for Gauteng (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>GAUTENG</b>						
Alberton	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Benoni	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Boksburg	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Brakpan	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Bronkhorstspuit	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Centurion	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Cullinan	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Edenvale	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Fochville	Merapong City LM	Safe	Safe	Safe	Safe	Safe
Germiston	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Heidelberg	Lesedi LM	Safe	Safe	Safe	Safe	Safe
Kempton Park	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Krugersdorp	Mogale City LM	Safe	Safe	Safe	Safe	Safe
Lochvaal	Emfuleni LM	Safe	Safe	Safe	Safe	
Magaliesburg	Mogale City LM	Safe	Safe	Safe	Safe	
Meyerton	Midvaal LM	Safe	Safe	Safe	Safe	Safe
Pretoria	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Pretoria North	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Pretoria West	Tshwane Metro	Safe	Safe	Safe	Safe	Safe
Randburg	Johannesburg Metro	Safe	Safe	Safe	Safe	Safe
Randfontein	Rand West City LM	Safe	Safe	Safe	Safe	Safe
Roodepoort	Johannesburg Metro	Safe	Safe	Safe	Safe	Safe
Springs	Ekurhuleni Metro	Safe	Safe	Safe	Safe	Safe
Vanderbijlpark	Emfuleni LM	Safe	Safe	Safe	Safe	Safe
Vereeniging	Emfuleni LM	Safe	Safe	Safe	Safe	Safe
Westonaria	Rand West City LM	Safe	Safe	Safe	Safe	Safe
	Tested	26	26	26	26	24
	Safe	26	26	26	26	24
	Unsafe	0	0	0	0	0



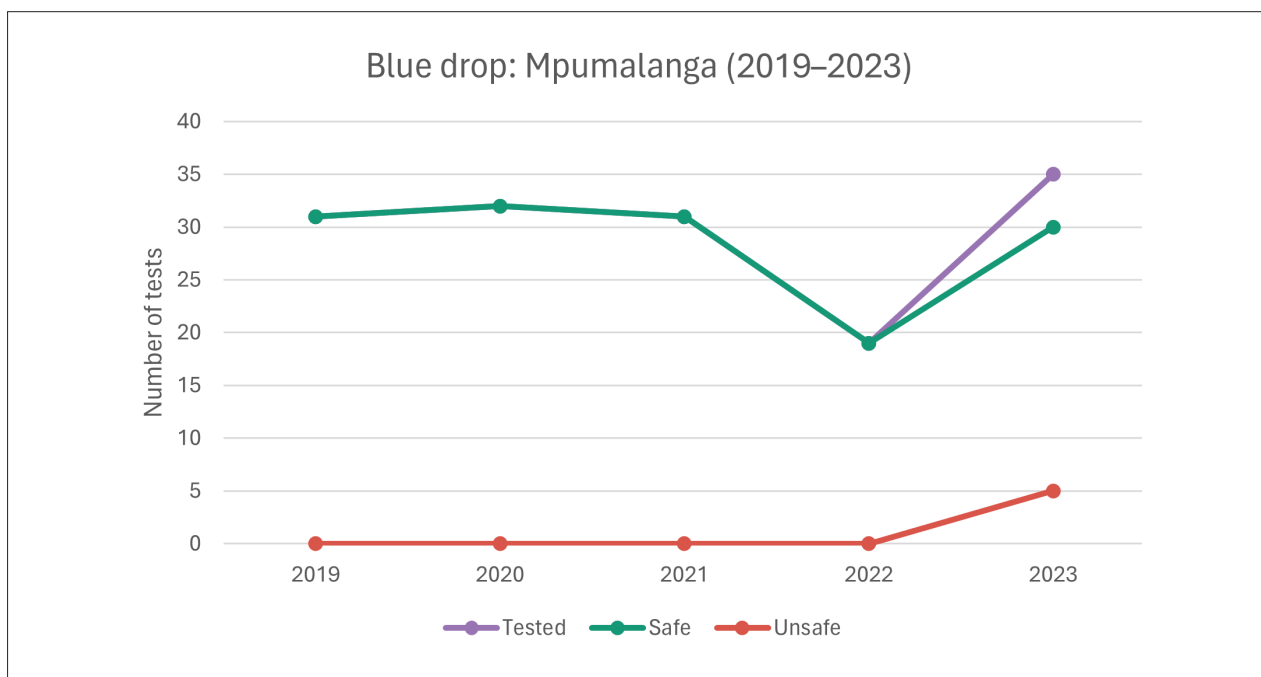
Graph 4: Blue drop results for Gauteng (2019–2023)

Table 7: Blue drop results for Mpumalanga (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>MPUMALANGA</b>						
Amersfoort	Pixley Ka Seme LM	Safe	Safe	Safe	Safe	Unsafe
Badplaas	Chief Albert Luthuli LM	Safe	Safe	Safe		Safe
Balfour	Dipaleseng LM	Safe	Safe	Safe		Safe
Barberton	Mbombela LM	Safe	Safe	Safe		Unsafe
Belfast	Emakhazeni LM	Safe	Safe	Safe		Safe
Bethal	Govan Mbeki LM	Safe	Safe	Safe	Safe	Safe
Breyten	Msukaligwa LM	Safe	Safe	Safe		Unsafe
Carolina	Chief Albert Luthuli LM	Safe	Safe	Safe		Safe
Charl Cilliers	Govan Mbeki LM	Safe	Safe	Safe		Safe
Chrissiesmeer	Msukaligwa LM	Safe	Safe	Safe		Safe
Delmas	Victor Khanye LM	Safe	Safe	Safe	Safe	Safe
Dullstroom	Emakhazeni LM	Safe	Safe	Safe	Safe	Safe
Ermelo	Msukaligwa LM	Safe	Safe	Safe	Safe	Safe
Evander	Govan Mbeki LM	Safe	Safe	Safe	Safe	Safe
Greylingstad	Dipaleseng LM	Safe	Safe			Safe
Kinross	Govan Mbeki LM				Safe	Safe
Kriel	Emalahleni LM	Safe	Safe		Safe	Safe
Leandra	Govan Mbeki LM	Safe	Safe	Safe		Safe
Lydenburg	Thaba Chweu LM	Safe	Safe	Safe		Safe
Machadodorp	Emakhazeni LM	Safe	Safe	Safe		Safe
Malelane	Nkomazi LM			Safe	Safe	Safe
Middelburg	Steve Tshwete LM	Safe	Safe	Safe	Safe	Safe
Morgenon	Lekwa LM	Safe	Safe	Safe	Safe	Unsafe
Nelspruit	Lekwa LM	Safe	Safe	Safe	Safe	Safe
Ogies	Emalahleni LM				Safe	Safe
Piet Retief	Mkhondo LM	Safe	Safe	Safe	Safe	Safe
Sabie	Thaba Chweu LM	Safe	Safe	Safe		Unsafe
Secunda	Govan Mbeki LM	Safe	Safe	Safe	Safe	Safe
Standerton	Lekwa LM	Safe	Safe	Safe	Safe	Safe
Sundra	Victor Khanye LM	Safe	Safe	Safe		Safe
Trichardt	Govan Mbeki LM		Safe	Safe	Safe	Safe
Volksrust	Pixley Ka Seme LM	Safe	Safe	Safe		Safe
Wakkerstroom	Pixley Ka Seme LM	Safe	Safe	Safe		Safe



Town	Municipality	2019	2020	2021	2022	2023
<b>MPUMALANGA</b>						
White River	Mbombela LM	Safe	Safe	Safe	Safe	Safe
Witbank	eMalahleni LM	Safe	Safe	Safe	Safe	Safe
	Tested	31	32	31	19	35
	Safe	31	32	31	19	30
	Unsafe	0	0	0	0	5

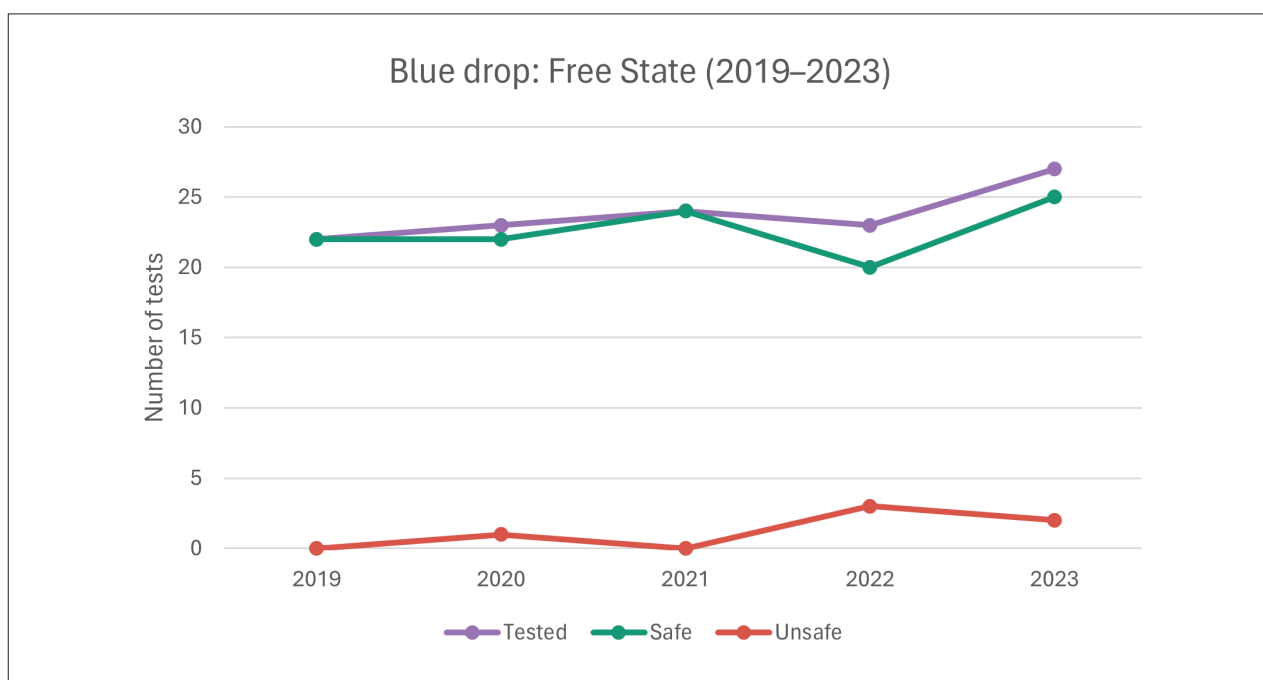


Graph 5: Blue drop results for Mpumalanga (2019–2023)

Table 8: Blue drop results for Free State (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>FREE STATE</b>						
Allanridge	Matjhabeng LM	Safe	Safe	Safe	Safe	
Bethlehem	Dihlabeng LM	Safe	Safe	Safe	Safe	Safe
Bloemfontein	Mangaung Metro	Safe	Safe	Safe	Safe	Safe
Boshof	Tokologo LM		Unsafe	Safe	Safe	Safe
Bothaville	Nala LM	Safe	Safe	Safe	Safe	Safe
Brandfort	Masilonyana LM					Safe
Bultfontein	Tswelopele LM					Safe
Dealesville	Tokologo LM	Safe	Safe	Safe	Safe	Safe
Deneysville	Metsimaholo LM					Safe
Frankfort	Mafube LM	Safe	Safe	Safe	Safe	Safe
Harrismith	Maluti-A-Phofung LM	Safe	Safe	Safe	Safe	Safe
Heilbron	Ngwathe LM	Safe	Safe	Safe	Safe	Safe
Hennenman	Matjhabeng LM	Safe	Safe	Safe	Safe	Safe
Hertzogville	Tokologo LM	Safe	Safe	Safe		Safe
Koffiefontein	Letsemeng LM				Unsafe	
Koppies	Ngwathe LM	Safe	Safe	Safe		Unsafe
Kroonstad	Moqhaka LM	Safe	Safe	Safe	Unsafe	
Luckhoff	Letsemeng LM				Safe	
Odendaalsrus	Matjhabeng LM	Safe	Safe	Safe	Safe	
Parys	Ngwathe LM	Safe	Safe	Safe	Unsafe	Unsafe
Petrus Steyn	Nketoana LM	Safe	Safe	Safe		Safe
Reitz	Nketoana LM	Safe	Safe	Safe	Safe	Safe
Riebeeckstad	Matjhabeng LM					
Sasolburg	Metsimaholo LM	Safe	Safe	Safe	Safe	Safe
Senekal	Setsoto LM	Safe	Safe	Safe	Safe	Safe
Steynsrus	Moqhaka LM				Safe	Safe
Theunissen	Masilonyana LM	Safe	Safe	Safe	Safe	Safe
Ventersburg	Matjhabeng LM					Safe
Viljoenskroon	Moqhaka LM	Safe	Safe	Safe	Safe	Safe
Virginia	Matjhabeng LM					Safe

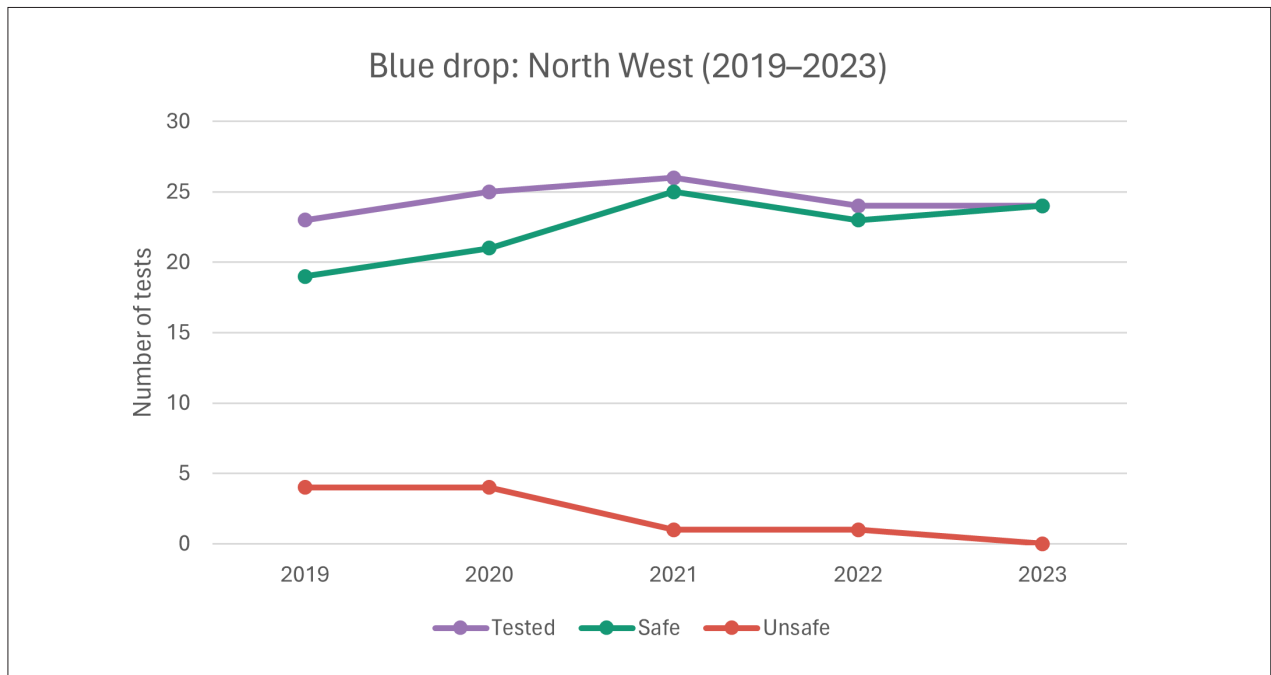
Town	Municipality	2019	2020	2021	2022	2023
<b>FREE STATE</b>						
Welkom	Matjhabeng LM	Safe	Safe	Safe	Safe	Safe
Winburg	Masilonyana LM	Safe	Safe	Safe	Safe	Safe
Zastron	Mohokare LM			Safe		Safe
	Tested	22	23	24	23	27
	Safe	22	22	24	20	25
	Unsafe	0	1	0	3	2



Graph 6: Blue drop results for Free State (2019–2023)

Table 9: Blue drop results for North West (2019–2023)

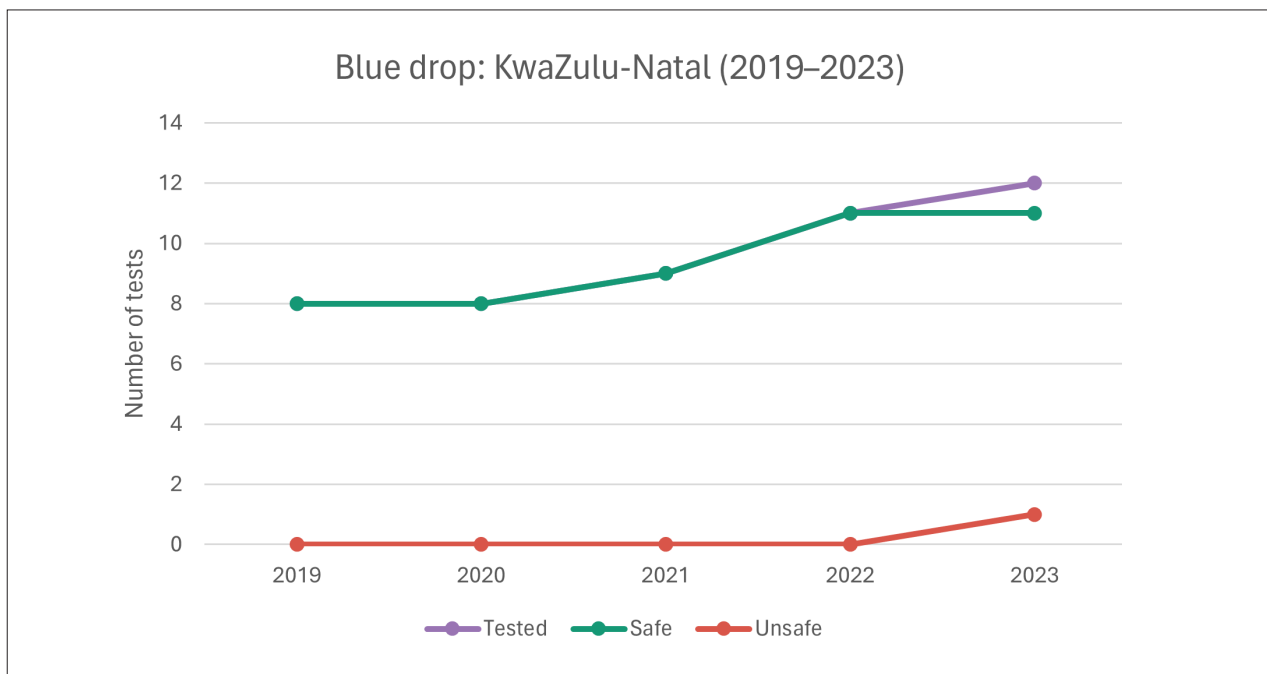
Town	Municipality	2019	2020	2021	2022	2023
<b>NORTH WEST</b>						
Biesiesvlei	Ditsobotla LM		Safe	Safe	Safe	Safe
Bloemhof	Lekwa-Teemane LM	Safe	Safe	Safe	Safe	Safe
Brits	Madibeng LM	Unsafe	Unsafe	Safe	Safe	Safe
Christiana	Lekwa-Teemane LM	Safe	Safe	Safe	Safe	Safe
Coligny	Ditsobotla LM	Safe	Safe	Safe	Unsafe	
Delareyville	Tswaing LM	Unsafe	Unsafe	Safe	Safe	Safe
Groot Marico	Ramotshere Moiloa LM	Safe	Safe	Safe	Safe	
Hartbeesfontein	City of Matlosana LM			Safe	Safe	Safe
Hartbeespoort	Madibeng LM	Safe	Safe	Safe		Safe
Klerksdorp	City of Matlosana LM	Safe	Safe	Safe	Safe	Safe
Koster	Kgetlengrivier LM	Safe	Safe	Safe	Safe	Safe
Lichtenburg	Ditsobotla LM	Safe	Safe	Safe	Safe	Safe
Mooinooi	Madibeng LM	Safe	Safe	Safe	Safe	Safe
Orkney	City of Matlosana LM	Safe	Safe	Safe	Safe	Safe
Ottosdal	Tswaing LM	Safe	Safe	Safe	Safe	Safe
Potchefstroom	JB Marks LM	Safe	Safe	Safe	Safe	Safe
Rustenburg	Rustenburg LM	Safe	Safe	Safe	Safe	Safe
Sannieshof	Tswaing LM	Unsafe	Unsafe	Safe	Safe	Safe
Schweizer-Reneke	Mamusa LM	Safe	Safe	Safe	Safe	Safe
Stella	Naledi LM	Unsafe	Unsafe	Safe	Safe	Safe
Stilfontein	City of Matlosana LM	Safe	Safe	Safe	Safe	Safe
Swartruggens	Kgetlengrivier LM	Safe	Safe	Safe	Safe	Safe
Ventersdorp	Ventersdorp LM		Safe	Safe	Safe	Safe
Vryburg	Naledi LM	Safe	Safe	Safe	Safe	Safe
Wolmaransstad	Maquassi Hills LM	Safe	Safe	Unsafe	Safe	Safe
Zeerust	Ramotshere Moiloa LM	Safe	Safe	Safe		Safe
	Tested	23	25	26	24	24
	Safe	19	21	25	23	24
	Unsafe	4	4	1	1	0



Graph 7: Blue drop results for North West (2019–2023)

Table 10: Blue drop results for KwaZulu-Natal (2019–2023)

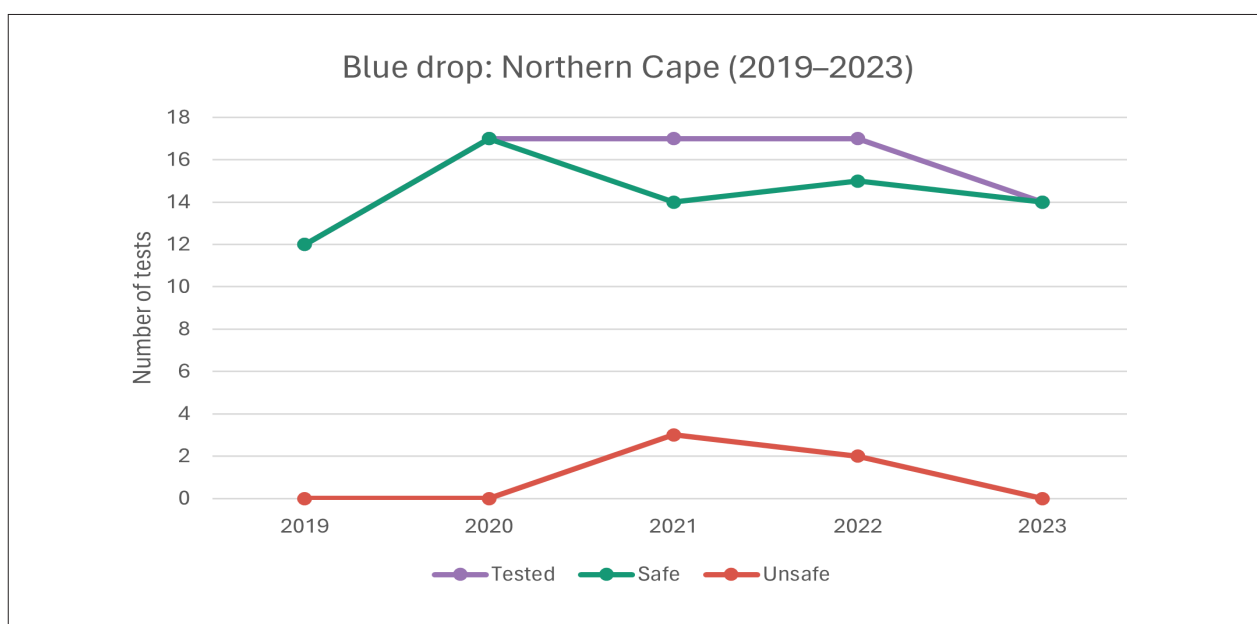
Town	Municipality	2019	2020	2021	2022	2023
<b>KWAZULU-NATAL</b>						
Amanzimtoti	eThekweni Metro			Safe	Safe	Safe
Dundee	Endumeni LM					Safe
Durban	eThekweni Metro					Safe
Hluhluwe	Big Five Hlabisa LM	Safe	Safe	Safe	Safe	Safe
Margate	Ray Nkonyeni LM	Safe	Safe	Safe	Safe	
Newcastle	Newcastle LM	Safe	Safe	Safe	Safe	Safe
Nottingham Road	uMgungundlovu DM				Safe	Safe
Paulpietersburg	eDumbe LM	Safe	Safe	Safe	Safe	Safe
Pinetown	eThekweni Metro				Safe	
Pongola	uPongola LM	Safe	Safe	Safe	Safe	Safe
Ramsgate	Ray Nkonyeni LM					Safe
Richards Bay	uMhlathuze LM	Safe	Safe	Safe	Safe	Safe
Utrecht	eMadlangeni LM	Safe	Safe	Safe	Safe	Safe
Vryheid	Abaqulusi LM	Safe	Safe	Safe	Safe	Unsafe
	Tested	8	8	9	11	12
	Safe	8	8	9	11	11
	Unsafe	0	0	0	0	1



Graph 8: Blue drop results for KwaZulu-Natal (2019–2023)

Table 11: Blue drop results for Northern Cape (2019–2023)

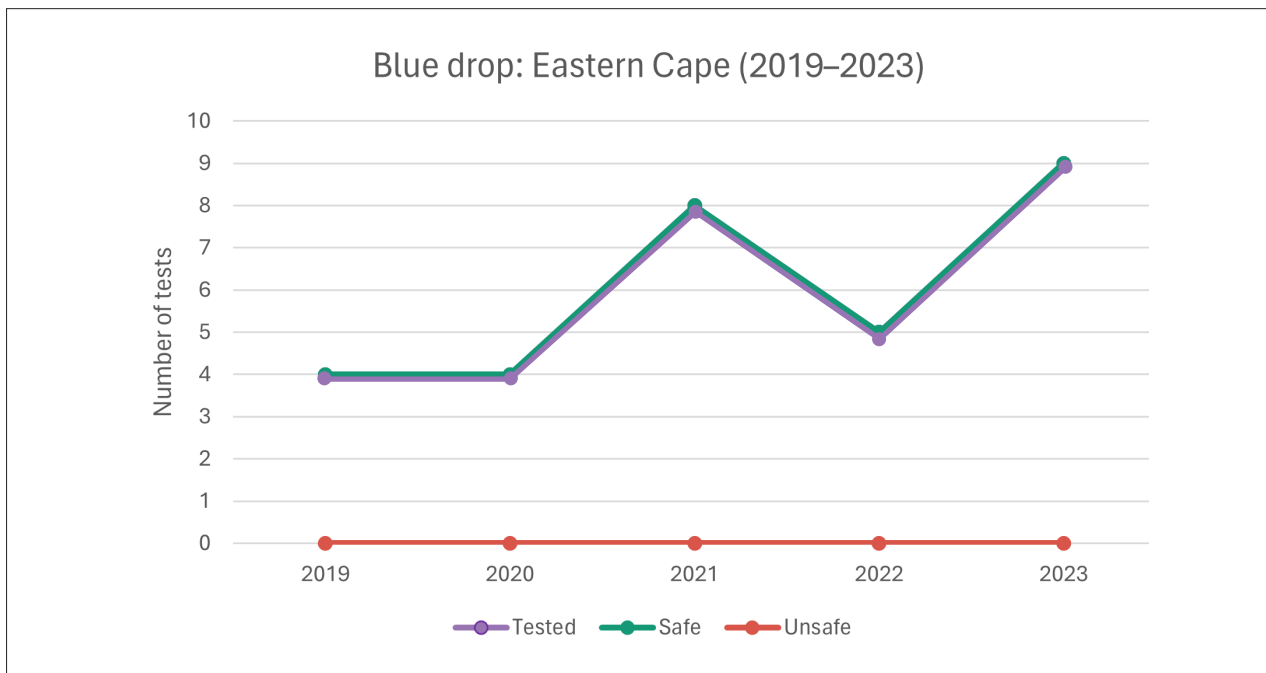
Town	Municipality	2019	2020	2021	2022	2023
<b>NORTHERN CAPE</b>						
Barkly West	Dikgatlong LM					Safe
Delportshoop	Dikgatlong LM				Safe	Safe
Douglas	Siyancuma LM	Safe	Safe	Safe	Safe	
Hartswater	Phokwane LM		Safe	Unsafe	Safe	
Hopetown	Thembelihle LM	Safe	Safe	Safe	Safe	
Jan Kempdorp	Phokwane LM		Safe	Unsafe	Safe	
Kakamas	Ka Garib LM	Safe	Safe	Safe	Safe	Safe
Kamieskroon	Kamiesberg LM		Safe	Safe		Safe
Kathu	Gamagara LM	Safe	Safe	Safe	Safe	Safe
Keimoes	Ka Garib LM	Safe	Safe	Safe	Safe	Safe
Kimberley	Sol Plaatje LM	Safe	Safe	Unsafe	Safe	Safe
Kuruman	Ga-Segonyana LM	Safe	Safe	Safe	Unsafe	Safe
Orania	Orania Dorpsraad	Safe	Safe	Safe	Safe	
Postmasburg	Tsantsabane LM	Safe	Safe	Safe		Safe
Prieska	Siyathemba LM		Safe	Safe	Safe	Safe
Springbok	Nama Khoi LM	Safe	Safe	Safe	Safe	Safe
Upington	Khara Hais LM	Safe	Safe	Safe	Unsafe	Safe
Vanderkloof	Renosterberg LM				Safe	
Warrenton	Magareng LM	Safe	Safe	Safe	Safe	Safe
Williston	Karoo Hoogland LM		Safe	Safe	Safe	Safe
	Tested	12	17	17	17	14
	Safe	12	17	14	15	14
	Unsafe	0	0	3	2	0



Graph 9: Blue drop results for Northern Cape (2019–2023)

Table 12: Blue drop results for Eastern Cape (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>EASTERN CAPE</b>						
Aliwal North	Walter Sisulu LM	Safe	Safe	Safe		Safe
East London	Buffalo City Metro					Safe
Cradock	Inxuba Yethemba LM			Safe	Safe	Safe
Elliot	Sakhisizwe LM	Safe	Safe	Safe		Safe
Graaff-Reinet	Dr Beyers Naudé LM			Safe	Safe	Safe
Jeffreys Bay	Kouga LM	Safe	Safe	Safe	Safe	Safe
Patensie	Kouga LM			Safe	Safe	Safe
Port Elizabeth	Nelson Mandela Metro	Safe	Safe	Safe	Safe	Safe
Uitenhage	Nelson Mandela Metro			Safe		Safe
	Tested	4	4	8	5	9
	Safe	4	4	8	5	9
	Unsafe	0	0	0	0	0



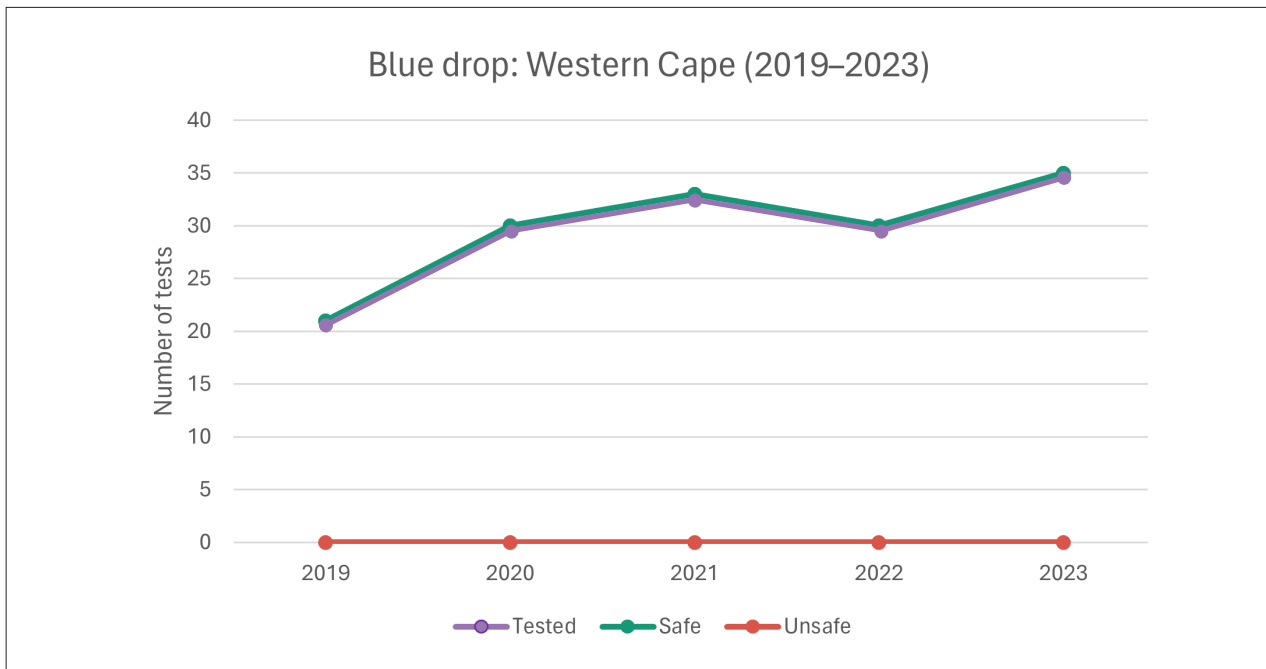
Graph 10: Blue drop results for Eastern Cape (2019–2023)



Table 13: Blue drop results for Western Cape (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>WESTERN CAPE</b>						
Bitterfontein	Matzikama LM	Safe	Safe	Safe		Safe
Bredasdorp	Cape Agulhas LM		Safe	Safe	Safe	Safe
Cape Town (Bellville)	Cape Town Metro	Safe	Safe	Safe	Safe	Safe
Cape Town (Durbanville)	Cape Town Metro		Safe	Safe	Safe	Safe
Cape Town (Gordon's Bay )	Cape Town Metro		Safe	Safe	Safe	Safe
Cape Town (Kraaifontein)	Cape Town Metro		Safe	Safe	Safe	Safe
Cape Town (Somerset West)	Cape Town Metro			Safe	Safe	Safe
Cape Town (Strand)	Cape Town Metro		Safe	Safe	Safe	Safe
Clanwilliam	Cederberg LM				Safe	Safe
Darling	Swartland LM		Safe	Safe	Safe	Safe
De Doorns	Breedevallei LM			Safe	Safe	Safe
Gansbaai	Overstrand LM	Safe	Safe	Safe	Safe	
George	George LM	Safe	Safe	Safe	Safe	Safe
Great Brak River	Mossel Bay Metro				Safe	Safe
Hartenbos	Mossel Bay Metro				Safe	Safe
Heidelberg	Hessequa LM					Safe
Hermanus	Overstrand LM	Safe	Safe	Safe	Safe	
Kalbaskraal	Swartland LM		Safe	Safe	Safe	
Klawer	Matzikama LM	Safe	Safe	Safe		Safe
Kleinmond	Overstrand LM	Safe	Safe	Safe	Safe	Safe
Langebaan	Saldanha Bay LM			Safe		Safe
Little Brak River	Mossel Bay Metro				Safe	Safe
Lutzville	Matzikama LM	Safe	Safe	Safe		Safe
Malmesbury	Swartland LM		Safe	Safe	Safe	Safe
Montagu	Langeberg LM	Safe	Safe	Safe	Safe	Safe
Moorreesburg	Swartland LM				Safe	
Mossel Bay	Mossel Bay Metro	Safe	Safe	Safe	Safe	Safe
Nuwerus	Matzikama LM	Safe	Safe	Safe		Safe
Oudtshoorn	Oudtshoorn LM	Safe	Safe	Safe	Safe	Safe

Town	Municipality	2019	2020	2021	2022	2023
<b>WESTERN CAPE</b>						
Paarl	Drakenstein LM				Safe	Safe
Pearly Beach	Overstrand LM	Safe	Safe	Safe	Safe	
Robertson	Langeberg LM	Safe	Safe	Safe	Safe	Safe
Saldanha	Saldanha Bay LM					Safe
Stellenbosch	Stellenbosch LM	Safe	Safe	Safe	Safe	Safe
Stilbaai	Hessequa LM	Safe	Safe	Safe	Safe	Safe
Swellendam	Swellendam LM				Safe	Safe
Vanrhynsdorp	Matzikama LM	Safe	Safe	Safe		Safe
Velddrif	Bergrivier LM	Safe	Safe	Safe		Safe
Vredendal	Matzikama LM	Safe	Safe	Safe		Safe
Vredendal South	Matzikama LM	Safe	Safe	Safe		
Wellington	Drakenstein LM	Safe	Safe	Safe		
Worcester	Breedevallei LM		Safe	Safe	Safe	Safe
	Tested	21	30	33	30	35
	Safe	21	30	33	30	35
	Unsafe	0	0	0	0	0

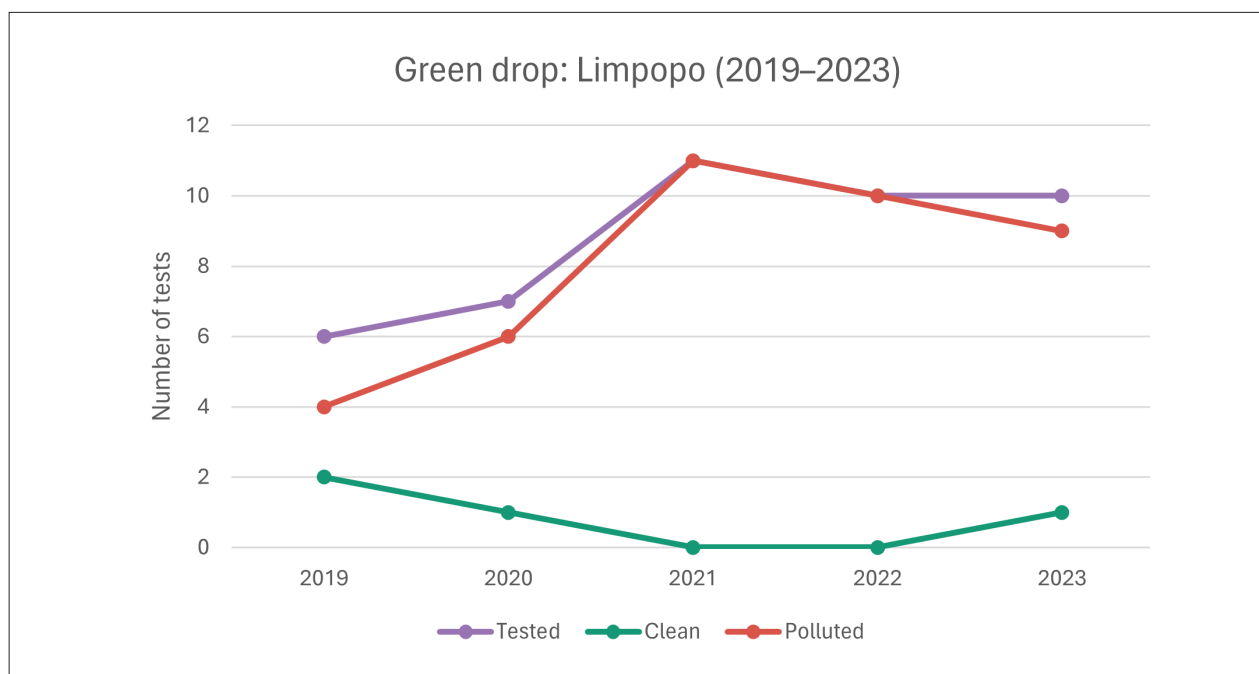


Graph 11: Blue drop results for Western Cape (2019–2023)

## SCHEDULE 2: COMPLETE GREEN DROP RESULTS (2019–2023)

Table 14: Green drop results for Limpopo (2019–2023)

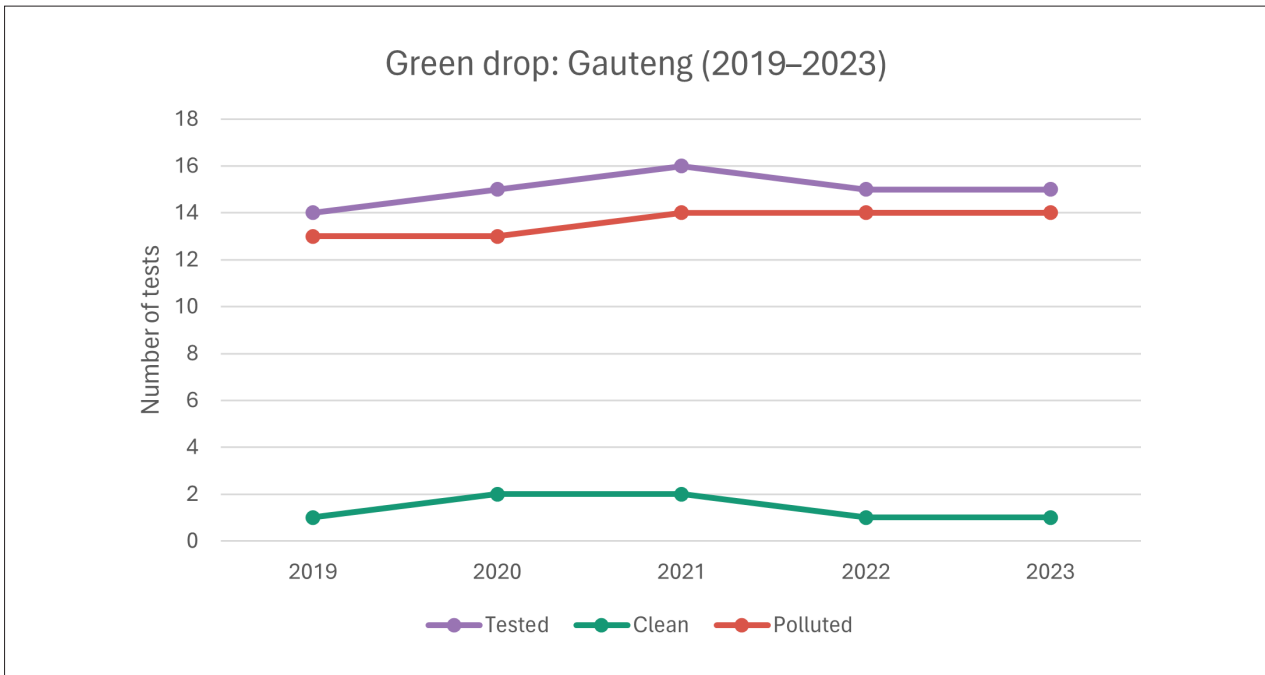
Town	Municipality	2019	2020	2021	2022	2023
<b>LIMPOPO</b>						
Ellisras	Lephalale LM	Polluted	Polluted	Polluted	Polluted	Polluted
Groblersdal	Elias Motsoaledi LM		Polluted	Polluted	Polluted	Polluted
Marble Hall	Ephraim Mogale LM		Polluted	Polluted	Polluted	Inexecutable
Musina	Musina LM			Polluted	Polluted	Polluted
Naboomspruit	Mookgophong LM	Polluted	Polluted	Polluted	Polluted	Polluted
Nylstroom	Modimolle LM	Polluted	Polluted	Polluted	Polluted	Polluted
Phalaborwa	Ba-Phalaborwa LM			Polluted		
Pietersburg	Polokwane LM	Polluted		Polluted	Polluted	Polluted
Potgietersrus	Mogalakwena LM		Polluted	Polluted	Polluted	Polluted
Thabazimbi	Thabazimbi LM					Polluted
Tzaneen	Greater Tzaneen LM	Clean	Clean	Polluted	Polluted	Polluted
Warmbad	Bela-Bela LM	Clean		Polluted	Polluted	Clean
	<b>Tested</b>	6	7	11	10	10
	<b>Safe</b>	2	1	0	0	1
	<b>Unsafe</b>	4	6	11	10	9
	<b>Inexecutable</b>	0	0	0	0	1



Graph 12: Green drop results for Limpopo (2019–2023)

Table 15: Green drop results for Gauteng (2019–2023)

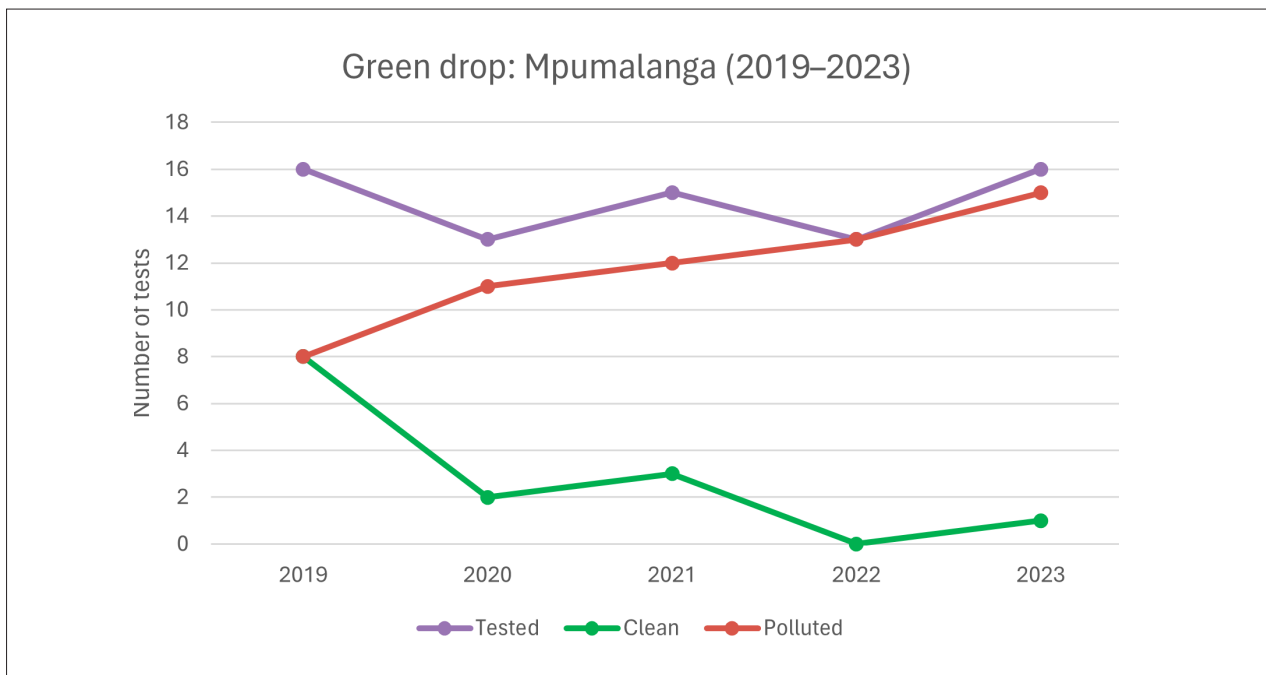
Town	Municipality	2019	2020	2021	2022	2023
<b>GAUTENG</b>						
Apies River (Rooiwal)	Tshwane Metro	Polluted	Polluted	Polluted	Polluted	Polluted
Brakpan (Erwat Jan Smuts)	Ekurhuleni Metro					Polluted
Bronkhorstspuit (Godrich)	Tshwane Metro	Polluted	Polluted	Polluted	Polluted	Polluted
Centurion West (Sunderland)	Tshwane Metro	Polluted	Polluted	Polluted	Polluted	Polluted
Cullinan (Cullinan)	Tshwane Metro	Polluted	Polluted			
Edenvale	Ekurhuleni Metro	Polluted		Polluted		
Fochville	Merafong City LM			Polluted	Polluted	Polluted
Heidelberg (Blesbok Ratanda)	Lesedi LM	Polluted	Polluted	Polluted	Polluted	Polluted
Kameeldrift (Baviaanspoort)	Tshwane Metro	Polluted	Polluted	Polluted	Polluted	Polluted
Kempton Park	Ekurhuleni Metro	Clean	Polluted	Polluted	Polluted	Polluted
Krugersdorp (Percy Steward)	Mogale City LM				Polluted	Polluted
Meyerton (Midvaal)	Midvaal LM	Polluted	Clean	Clean	Polluted	
Pretoria West (Daspoort)	Tshwane Metro	Polluted	Polluted	Polluted	Clean	Polluted
Randfontein (Elandsvlei)	Randfontein LM		Polluted	Polluted	Polluted	Polluted
Springs	Ekurhuleni Metro	Polluted	Clean	Clean		Clean
Vanderbijlpark (Rietspruit)	Emfuleni LM	Polluted	Polluted	Polluted	Polluted	Polluted
Vanderbijlpark (Sebokeng)	Emfuleni LM	Polluted	Polluted	Polluted	Polluted	
Vereeniging (Leeukuil)	Emfuleni LM	Polluted	Polluted	Polluted	Polluted	Polluted
Westonaria	Rand West City LM		Polluted	Polluted	Polluted	Polluted
	<b>Tested</b>	14	15	16	15	15
	<b>Safe</b>	1	2	2	1	1
	<b>Unsafe</b>	13	13	14	14	14
	<b>Inexecutable</b>	0	0	0	0	0



Graph 13: Green drop results for Gauteng (2019–2023)

Table 16: Green drop results for Mpumalanga (2019–2023)

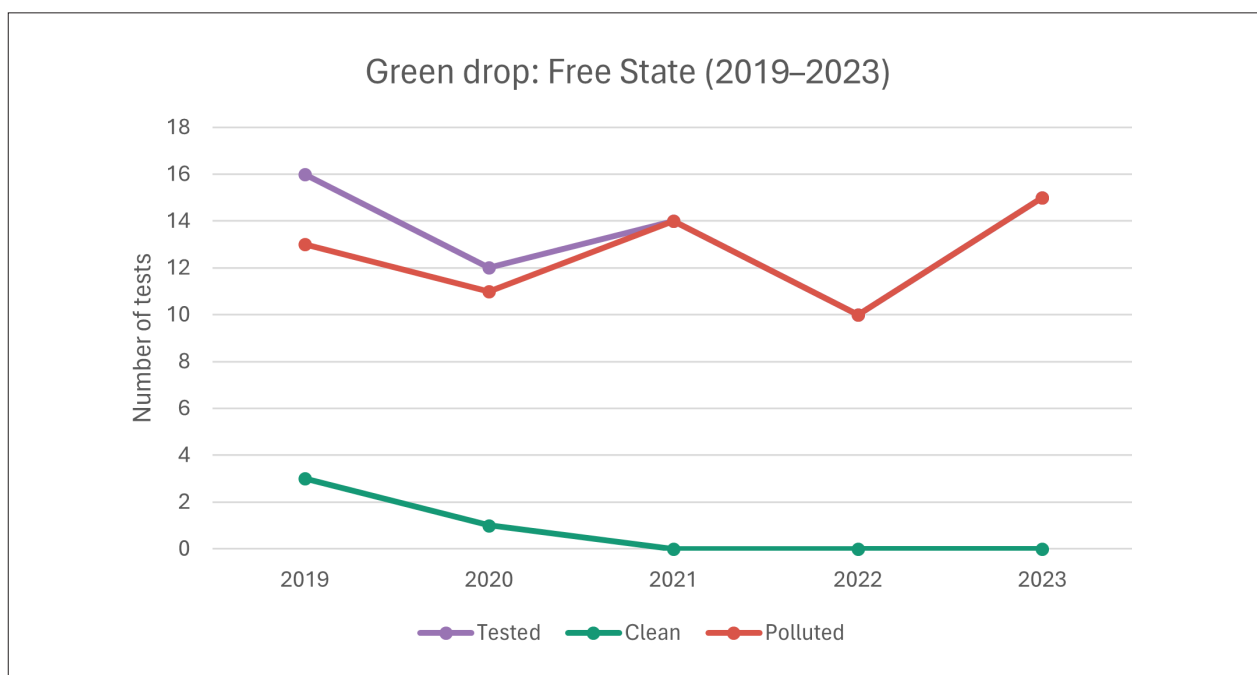
Town	Municipality	2019	2020	2021	2022	2023
<b>MPUMALANGA</b>						
Belfast	Emakhazeni LM	Clean	Polluted	Polluted	Polluted	Polluted
Bethal	Govan Mbeki LM	Polluted	Inexecutable	Polluted	Inexecutable	Inexecutable
Delmas	Victor Khanye LM	Clean		Polluted	Polluted	Polluted
Dullstroom	Emakhazeni LM	Clean	Polluted	Polluted	Polluted	Polluted
Ermelo	Msukaligwa LM	Clean	Clean	Clean	Polluted	Polluted
Evander	Govan Mbeki LM	Polluted	Polluted	Polluted	Polluted	Polluted
Leandra	Govan Mbeki LM	Clean	Polluted	Polluted		Polluted
Lydenburg	Thaba Chweu LM	Polluted	Inexecutable	Inexecutable	Inexecutable	Polluted
Machadodorp	Emakhazeni LM	Polluted	Polluted	Polluted		Polluted
Middelburg	Steve Tshwete LM	Clean	Polluted	Polluted	Polluted	Polluted
Nelspruit	Mbombela LM	Polluted	Polluted	Polluted	Polluted	Polluted
Piet Retief	Mkhondo LM	Clean	Clean	Clean	Polluted	Polluted
Secunda (Kinross)	Govan Mbeki LM	Polluted	Polluted	Polluted	Polluted	Polluted
Secunda (Trichardt)	Govan Mbeki LM		Polluted	Clean	Polluted	Clean
Standerton	Lekwa LM	Polluted	Polluted	Polluted	Polluted	Polluted
White River	Mbombela LM	Clean			Polluted	Polluted
Witbank	Emalahleni LM	Polluted	Polluted	Polluted	Polluted	Polluted
	<b>Tested</b>	16	13	15	13	16
	<b>Safe</b>	8	2	3	0	1
	<b>Unsafe</b>	8	11	12	13	15
	<b>Inexecutable</b>	0	2	1	2	1



Graph 14: Green drop results for Mpumalanga (2019–2023)

Table 17: Green drop results for Free State (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>FREE STATE</b>						
Bethlehem	Dihlabeng LM	Polluted	Inexecutable	Polluted		Polluted
Bloemfontein (Roodewal)	Mangaung Metro	Polluted	Polluted	Polluted	Polluted	Polluted
Bloemfontein (Renosterspruit)	Mangaung Metro					Polluted
Bothaville	Nala LM	Polluted	Polluted	Polluted	Polluted	Polluted
Bultfontein	Tswelopele LM	Polluted	Polluted	Polluted		Polluted
Frankfort	Mafube LM	Polluted	Polluted	Polluted	Polluted	Polluted
Harrismith	Maluti-A-Phofung LM	Polluted	Inexecutable	Polluted		Polluted
Heilbron	Ngwathe LM	Clean	Polluted	Polluted	Polluted	Polluted
Hertzogville	Tokologo LM	Polluted	Polluted	Polluted		
Kroonstad	Moqhaka LM	Polluted	Polluted	Polluted	Polluted	Polluted
Parys	Ngwathe LM	Clean	Polluted	Polluted	Polluted	Polluted
Reitz	Nketoana LM	Polluted	Polluted	Polluted	Polluted	
Sasolburg	Metsimaholo LM	Clean	Clean	Polluted	Polluted	Polluted
Senekal	Setsoto LM	Polluted			Polluted	Inexecutable
Viljoenskroon	Moqhaka LM	Polluted			Polluted	Polluted
Welkom	Matjhabeng LM	Polluted	Polluted	Polluted		Polluted
Winburg	Masilonyana LM	Polluted	Polluted	Polluted		Polluted
Zastron	Mohokare LM					Polluted
	Tested	16	12	14	10	15
	Safe	3	1	0	0	0
	Unsafe	13	11	14	10	15
	Inexecutable	0	2	0	0	1

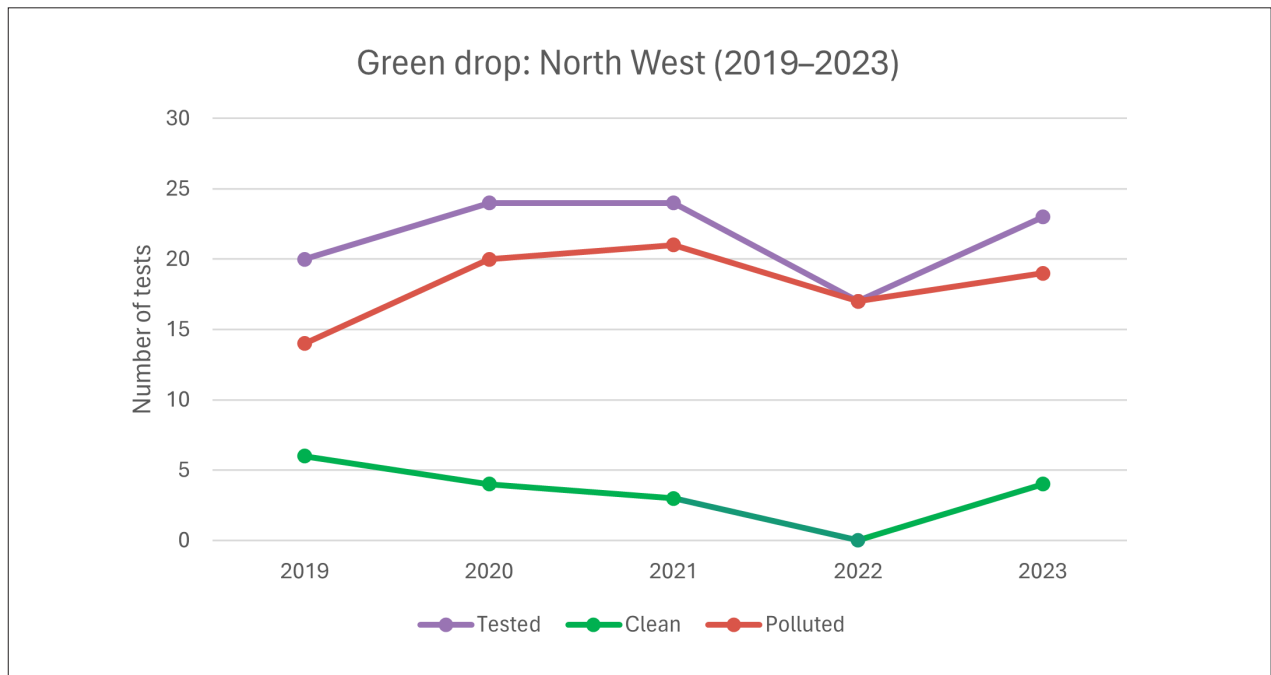


Graph 15: Green drop results for Free State (2019–2023)

Table 18: Green drop results for North West (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>NORTH WEST</b>						
Biesiesvlei	Ditsobotla LM		Polluted	Polluted		
Bloemhof	Lekwa-Teemane LM	Polluted	Polluted	Polluted		Polluted
Brits	Madibeng LM	Clean	Polluted	Polluted	Polluted	Polluted
Buffelspoort	Madibeng LM	Clean	Polluted			
Christiana	Lekwa-Teemane LM	Polluted	Polluted	Polluted	Polluted	Polluted
Coligny	Ditsobotla LM	Polluted	Polluted	Polluted	Polluted	
Delareyville	Tswaing LM	Clean	Polluted	Polluted	Polluted	Clean
Groot Marico	Ramotshere Moiloa LM	Polluted	Polluted	Polluted	Polluted	Polluted
Hartbeesfontein	Matlosana LM				Polluted	Polluted
Hartbeespoort	Madibeng LM	Clean	Polluted	Polluted		Clean
Klerksdorp	Matlosana City LM	Polluted	Polluted	Polluted	Polluted	Polluted
Koster	Kgetlengrivier LM	Polluted	Polluted	Polluted	Polluted	Polluted
Lichtenburg	Ditsobotla LM	Polluted	Polluted	Polluted	Polluted	Polluted
Mahikeng	Mahikeng LM		Polluted	Polluted		
Mooinooi	Madibeng LM	Polluted	Polluted	Clean	Polluted	Polluted
Orkney	Matlosana City LM					Polluted
Ottosdal	Tswaing LM					Polluted
Potchefstroom	Tlokwe LM	Clean	Polluted	Polluted	Polluted	Clean
Rustenburg	Rustenburg LM	Polluted	Clean	Polluted	Polluted	Polluted
Sannieshof	Tswaing LM		Clean	Polluted		Polluted
Schweizer-Reneke	Mamusa LM	Polluted	Clean	Polluted		Polluted
Stella	Naledi LM		Polluted	Polluted		
Stilfontein	Matlosana City LM	Polluted	Polluted	Polluted	Polluted	Polluted
Swartruggens	Kgetlengrivier LM	Polluted		Polluted	Polluted	Polluted
Ventersdorp	Ventersdorp LM		Polluted	Polluted	Polluted	Clean
Vryburg	Naledi LM	Polluted	Polluted	Polluted	Polluted	Polluted
Wolmaransstad	Maquassi Hills LM	Clean	Clean	Clean	Polluted	Polluted
Zeerust	Ramotshere Moiloa LM	Polluted	Polluted	Clean		Polluted
	Tested	20	24	24	17	23
	Safe	6	4	3	0	4
	Unsafe	14	20	21	17	19
	Inexecutable	0	0	0	0	0

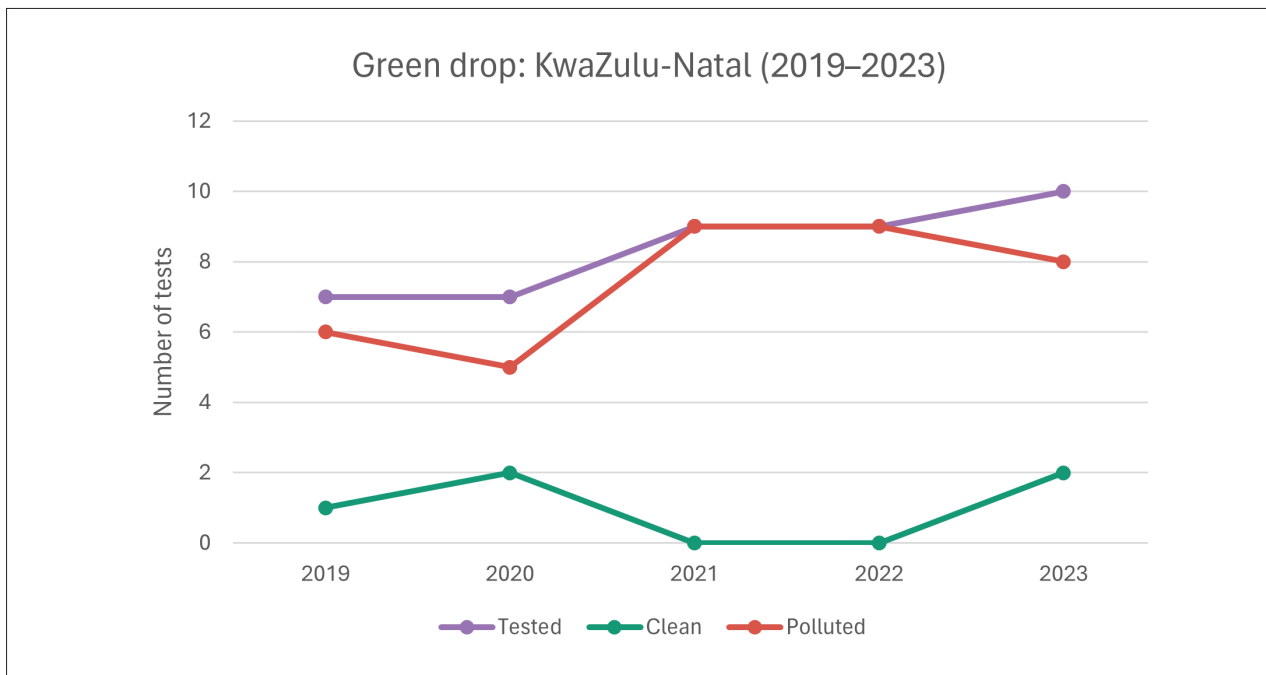




Graph 16: Green drop results for North West (2019–2023)

Table 19: Green drop results for KwaZulu-Natal (2019–2023)

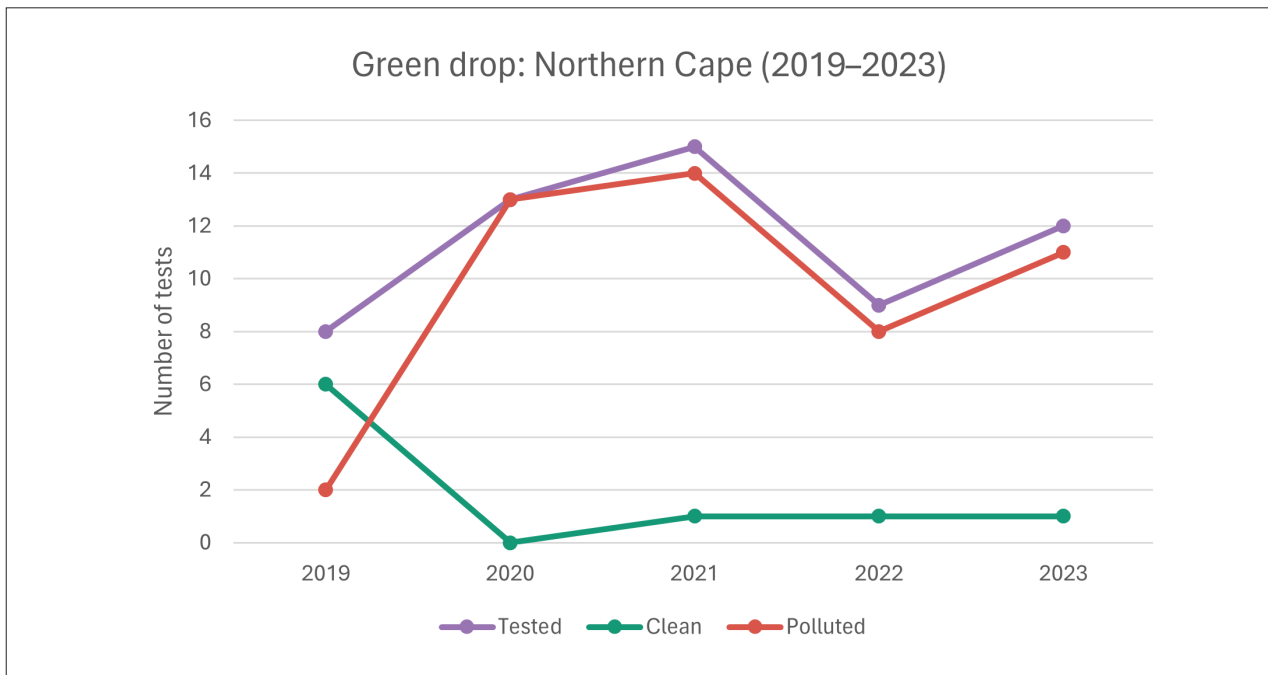
Town	Municipality	2019	2020	2021	2022	2023
<b>KWAZULU-NATAL</b>						
Amanzimtoti	eThekweni Metro			Polluted	Polluted	Polluted
Dundee	Endumeni LM					Polluted
Durban	eThekweni Metro					Polluted
Hluhluwe	The Big 5 Hlabisa LM		Clean	Polluted	Polluted	Polluted
Margate	Ray Nkonyeni LM	Polluted	Polluted	Polluted	Polluted	
Newcastle	Newcastle LM	Polluted	Polluted	Polluted	Polluted	
Paulpietersburg	eDumbe LM	Polluted	Clean	Polluted	Polluted	Polluted
Pongola	uPongola LM	Polluted	Polluted	Polluted	Polluted	Polluted
Ramsgate	Ray Nkonyeni LM					Polluted
Richards Bay	uMhlathuze LM	Polluted		Polluted	Polluted	Clean
Utrecht	eMadlangeni LM	Clean	Polluted	Polluted	Polluted	Clean
Vryheid	Abaqulusi LM	Polluted	Polluted	Polluted	Polluted	Polluted
	Tested	7	7	9	9	10
	Safe	1	2	0	0	2
	Unsafe	6	5	9	9	8
	Inexecutable	0	0	0	0	0



Graph 17: Green drop results for KwaZulu-Natal (2019–2023)

Table 20: Green drop results for Northern Cape (2019–2023)

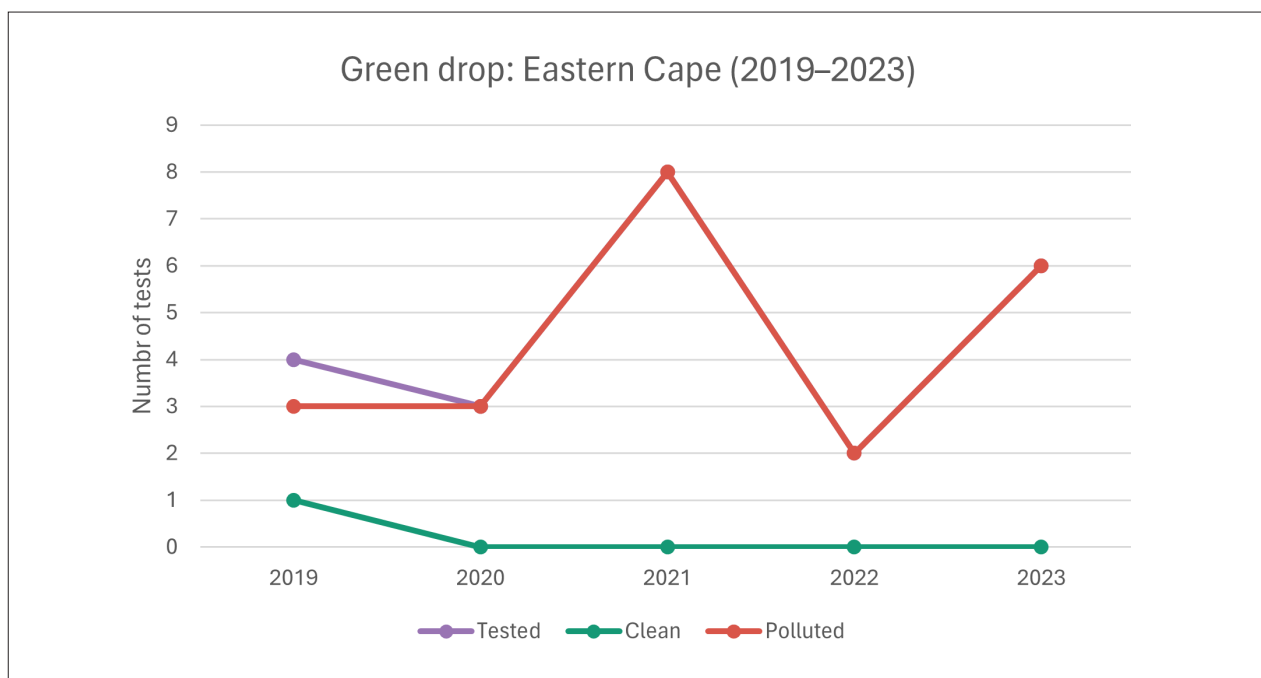
Town	Municipality	2019	2020	2021	2022	2023
<b>NORTHERN CAPE</b>						
Carolusberg	Nama Khoi LM					Polluted
Delportshoop	Dikgatlong LM					
Douglas	Siyancuma LM		Polluted	Polluted		
Hartswater	Phokwane LM		Polluted	Polluted	Polluted	
Hopetown	Thembelihle LM			Polluted		
Jan Kempdorp	Phokwane LM		Polluted	Polluted	Polluted	
Kakamas	Kai !Garib LM		Polluted		Polluted	Polluted
Kamieskroon	Kamiesberg LM		Polluted	Polluted		
Kathu	Gamagara LM	Clean	Polluted	Polluted		Clean
Keimoes	Kai !Garib LM		Polluted	Polluted	Polluted	Polluted
Kimberley	Sol Plaatje LM	Polluted	Polluted	Polluted	Clean	Polluted
Kuruman	Ga-Segonyana LM	Clean	Polluted	Polluted	Polluted	Polluted
Okiep	Nama Khoi LM					Polluted
Orania	Thembelihle LM			Clean		
Postmasburg	Tsantsabane LM	Clean				
Prieska	Siyathemba LM		Polluted	Polluted	Polluted	Polluted
Springbok	Nama Khoi LM	Polluted			Polluted	Polluted
Steinkopf	Nama Khoi LM					Polluted
Upington	Khara Hais LM	Clean	Polluted	Polluted	Polluted	Polluted
Vaalharts	Phokwane LM	Clean	Polluted	Polluted		
Warrenton	Magareng LM			Polluted		Polluted
Williston	Karoo Hoogland LM	Clean	Polluted	Polluted		
	<b>Tested</b>	8	13	15	9	12
	<b>Safe</b>	6	0	1	1	1
	<b>Unsafe</b>	2	13	14	8	11
	<b>Inexecutable</b>	0	0	0	0	0



Graph 18: Green drop results for Northern Cape (2019–2023)

Table 21: Green drop results for Eastern Cape (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>EASTERN CAPE</b>						
Aliwal North	Walter Sisulu LM	Polluted	Polluted	Polluted		Polluted
East London	Buffalo Bay Metro					Polluted
Cradock	Inxuba Yethemba LM			Polluted	Polluted	Polluted
Elliot	Sakhisizwe LM	Clean		Polluted		
Graaff-Reinet	Dr Beyers Naudé LM			Polluted	Polluted	Polluted
Jeffreys Bay	Kouga LM	Polluted	Polluted	Polluted		Polluted
Patensie	Kouga LM			Polluted		
Port Elizabeth	Nelson Mandela Metro	Polluted	Polluted	Polluted		
Uitenhage	Nelson Mandela Metro			Polluted		Polluted
	Tested	4	3	8	2	6
	Safe	1	0	0	0	0
	Unsafe	3	3	8	2	6
	Inexecutable	0	0	0	0	0

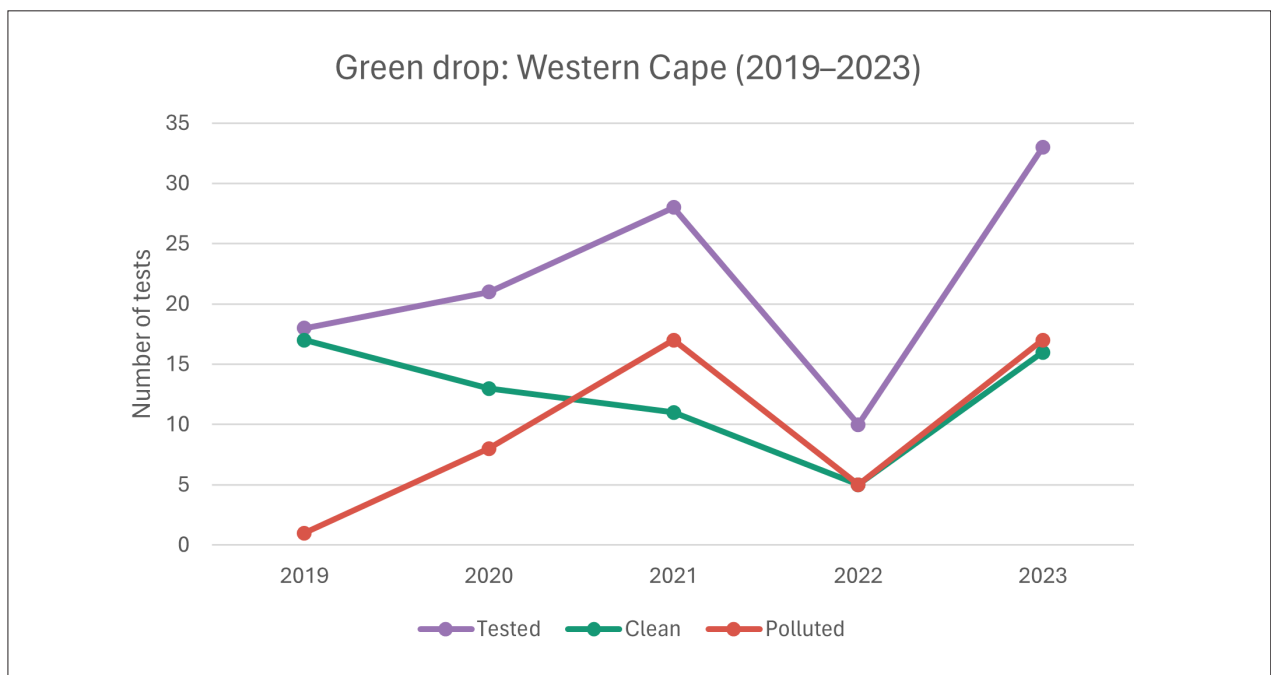


Graph 19: Green drop results for Eastern Cape (2019–2023)

Table 22: Green drop results for Western Cape (2019–2023)

Town	Municipality	2019	2020	2021	2022	2023
<b>WESTERN CAPE</b>						
Bitterfontein	Matzikama LM	Clean	Polluted	Polluted		Clean
Bredasdorp	Cape Agulhas LM		Polluted	Polluted		Polluted
Cape Town (Bellville)	Cape Town Metro			Polluted		Clean
Cape Town (Gordon's Bay)	Cape Town Metro					Clean
Cape Town (Kraaifontein)	Cape Town Metro			Polluted		Clean
Cape Town (Scottsdene)	Cape Town Metro	Polluted	Polluted	Polluted		
Darling	Swartland LM	Clean	Clean	Clean		Clean
De Doorns	Breedevallei LM			Polluted		Polluted
Gansbaai	Overstrand LM	Clean	Clean	Polluted		Inexecutable
George (Outeniqua)	George LM	Clean	Polluted	Polluted	Polluted	Polluted
George (Gwaing)	George LM					Polluted
Great Brak	Mossel Bay LM			Clean	Clean	Polluted
Hartenbos	Mossel Bay LM			Clean	Clean	Polluted
Hawston	Overstrand LM	Clean	Clean	Clean		Polluted
Heidelberg	Hessequa LM					Polluted
Hermanus	Overstrand LM	Clean	Clean	Clean		Inexecutable
Klawer	Matzikama LM	Clean	Clean	Clean		Clean
Kleinmond	Overstrand LM	Clean	Clean	Clean		Polluted
Langebaan	Saldanha Bay LM			Polluted		Clean
Lutzville	Matzikama LM	Clean	Polluted			Polluted
Malmesbury	Swartland LM		Clean	Clean		Clean
Montagu	Langeberg LM	Clean	Clean	Polluted	Clean	Clean
Mossel Bay (Pinnacle Point)	Mossel Bay LM				Clean	Polluted
Nuwerus	Matzikama LM	Clean		Polluted		Clean
Oudtshoorn	Oudtshoorn LM	Clean	Polluted	Polluted	Clean	Clean
Paarl	Drakenstein LM					Polluted
Robertson	Langeberg LM	Clean		Polluted	Polluted	Polluted
Saldanha	Saldanha Bay LM					Clean
Stellenbosch	Stellenbosch LM	Clean	Clean	Clean	Polluted	Polluted

Town	Municipality	2019	2020	2021	2022	2023
<b>WESTERN CAPE</b>						
Stilbaai	Hessequa LM		Polluted	Polluted	Polluted	Polluted
Swellendam	Swellendam LM				Polluted	Polluted
Vanrhynsdorp	Matzikama LM	Clean	Clean	Polluted		Clean
Velddrif	Bergrivier LM		Clean	Polluted		Clean
Vredendal	Matzikama LM	Clean	Clean	Clean		Clean
Wellington	Drakenstein LM	Clean	Polluted	Polluted		Clean
Worcester	Breedevallei LM		Clean	Clean		Polluted
	<b>Tested</b>	18	21	28	10	33
	<b>Safe</b>	17	13	11	5	16
	<b>Unsafe</b>	1	8	17	5	17
	<b>Inexecutable</b>	0	0	0	0	2



Graph 20: Green drop results for Western Cape (2019–2023)



**CHEMICAL PARAMETERS (6 IN 1)**

<b>TOTAL NITROGEN</b> ppm	0	25	50	120	250	430	
<b>TOTAL PHOSPHORUS</b> ppm	0	0.5	1	3	5	10	20
<b>FREE AMMONIA</b> ppm	0	0.5	1	3	5	10	20
<b>TOTAL AMMONIA</b> ppm	0	1	2	6	10	20	40
<b>TOTAL CALCIUM</b> ppm	0	40	80	120	180	240	300
<b>pH</b>	6.0	6.4	6.8	7.2	7.6	8.0	8.4

**BLUE AND GREEN DROP  
PROJECT REPORT**