



Water Warrior School Water Quality Testing Project



Partners:



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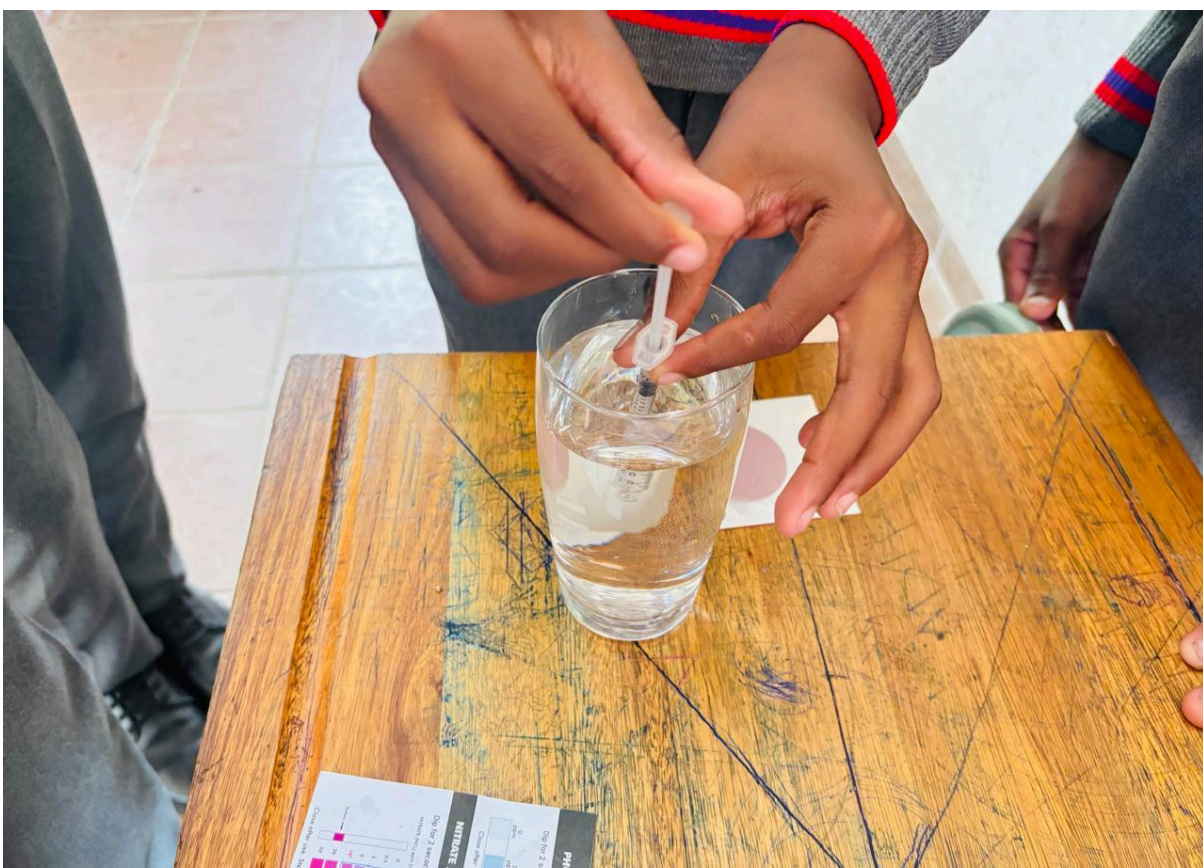
1. Schools, Water, Sanitation and Learning

Our constitution guarantees each child the right to a quality education. This includes going to school that provides safe drinking water, sanitation, and hygiene facilities. Social justice would mean that children can focus on learning, and that those resources are available to all learners in all schools.

The reality of many learners is unfortunately far from this and access to safe, reliable water and adequate sanitation in South African schools remains a persistent challenge, particularly for schools in rural communities and Quintile 1-3, low SES (Socio-Economic Status) schools mainly in townships. Despite constitutional guarantees and government commitments to ensure access to water and sanitation, many learners still face unsafe or inadequate conditions that jeopardize their health and dignity.

Many South African schools still struggle with access to basic Water and Sanitation, Hygiene (WASH). In 2024 South Africa had 24,850 schools of which 22,381 (90%) were public and 2,469 were independent schools. Almost [11 000 schools in the country](#) (almost 50%) of public schools are without a single flushing toilet and 383 (2%) public schools do not have access to running water. These numbers may be higher, as [a report](#) by the International Labour Research and Information Group (ILRIG) suggests that at least 25% of public schools do not have access to functional running water systems. Schools, like communities, also suffer sporadic and protracted water interruptions because of the inability of local authorities to provide clean and drinkable water.

Increasingly, schools across the country continue to operate with intermittent or no piped water supply, relying instead on boreholes, rainwater harvesting, or water tank deliveries. These sources are often unreliable, poorly maintained, or contaminated, posing serious



health risks to learners and staff. At the same time, thousands of schools lack proper sanitation facilities, with many still using pit latrines, which are unsafe, unhygienic, and often unusable, especially for girls during menstruation. Even more horrifying, several incidents where young children have fallen into and died in these pit latrines still occur, despite many promises to eradicate this scourge.

The impact on education is significant. Inadequate water supply and poor sanitation compromise hygiene, increase the risk of disease, and undermine learners' ability to focus and participate fully in school. Schools may be forced to close during water outages or sanitation-related health incidents, disrupting learning and reinforcing inequality. In some cases, teachers and students have to use [the fields](#) around the school to relieve themselves, raising safety issues. The lack of private, functional toilets also contributes to absenteeism, particularly among female learners. As important, it is an affront to these children's dignity, an important part of care and wellness that should be an integral part of quality education.

The daily reality for thousands of learners across the country is that the only toilets they have available to relieve themselves are broken, unhygienic and structurally dangerous – often with no access to water and soap to wash their hands. Some of these schools rely on harvested rainwater and water collected from nearby streams for both drinking and cooking, which will result in health issues. Water has become part of the stationery list provided to each child.

Some of the key reasons for poor water and sanitation services at schools include:

- Ageing and poorly maintained infrastructure.
- Delays in service delivery and infrastructure development by the Department of Basic Education and local municipalities.
- Reliance on JOJO tanks that are not maintained and regularly cleaned.
- Poor water quality due to contamination from municipal water supplies, nearby sewage spills, or agricultural and industrial runoff.
- Lack of regular water quality monitoring and testing of municipal water.
- Neglect of sanitation planning and maintenance, especially in rural schools.

2. A response to water quality issues in school

The lack of access to quality water and sanitation in schools were key reasons why a coalition of organisations recently ran the water quality monitoring schools campaign. The Water Warriors Collective Water Testing Campaign was initiated by WaterCAN. Very soon, like-minded organisations joined this campaign.

During the month of World Water Day, in March 2025, the Water Warriors Collective, held its school water testing project that involved 95 schools in 8 provinces. The project was made possible through an incredible collaboration and partnership with WaterCAN,

Adopt-a-River, WESSA, Johannesburg City Parks and Zoo, Cape Town Science Centre, Nelson Mandela Bay Science Centre, Makhanda River Rescue, and the Leap Institute.

This project aimed to create awareness on the water challenges facing our schools, build Water Warrior Champions to provide youth leadership in environmental monitoring and empowering students and teachers to test local water sources and to be part of the solution for safe drinking water for all.

The project involved online and in-person training for teachers and students. Water testing kits were provided to learners and teachers to monitor the quality of their local water sources—from taps to rivers and tanks – the main sources for drinking water in each of the areas. Each participating school received Citizen Science Water Test Kits, developed by iLAB, to help students test their water and ensure that their water is safe to drink. The participants were also trained and guided on how to interpret the results and then to upload the information to WaterCAN's online [MapMyWater](#) tool.

The testing kit assessed for chemical parameters (nitrates, nitrites, phosphates, chlorine, alkalinity, pH and hardness) and microbiological contamination (total coliform, ecoli) to determine the water's safety for human consumption.

In addition, in areas with unsafe water, the project partners took on the task of engaging schools to highlight the health hazard of the polluted water, ask for action from local authorities, and support schools in highlighting the issue. The Collective is also reflecting on the lessons learned to find ways in which this can be used in the future to expand this to other schools and how to use the results to bring about positive change.

An important focus will be to grow the group of young Water Warriors who can drive positive change in the future.

3. Summary of Results

This report presents the key findings of the project, including school participation levels, water quality results, and proposed next steps.

In summary, of the 95 schools that participated, and the number of tests uploaded in each province is as follows:

PROVINCE	NUMBER OF SCHOOLS TEST RESULTS UPLOADED
Eastern Cape	19
Gauteng	10
KwaZulu-Natal	15
Limpopo	1

North West	1
Northern Cape	1
Western Cape	6
Total	53

While only 47% of schools were able to upload results, there are a number of reasons for this, including school holidays in between measurement and feedback, results being misplaced, and technical difficulties experienced in uploading data to the server.

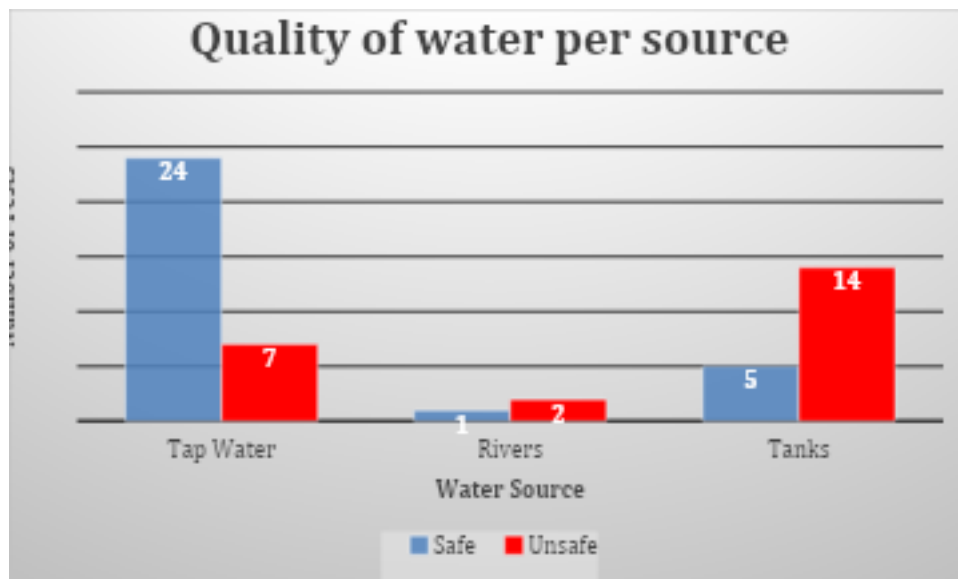


4. Findings

Knowledge is power, so knowing the status of water quality is a very necessary first step to effect change.

Water Sources

There was a good mix of water sources tested:



The table above highlights some concerns, as 7 schools using tap water, 2 getting water directly from a river and 14 using water tanks were found to have water that is not safe for drinking.

a. Chemical and Bacterial Results

These test provide important information on the health safety of water, i.e. whether it is safe for learners to drink the water.

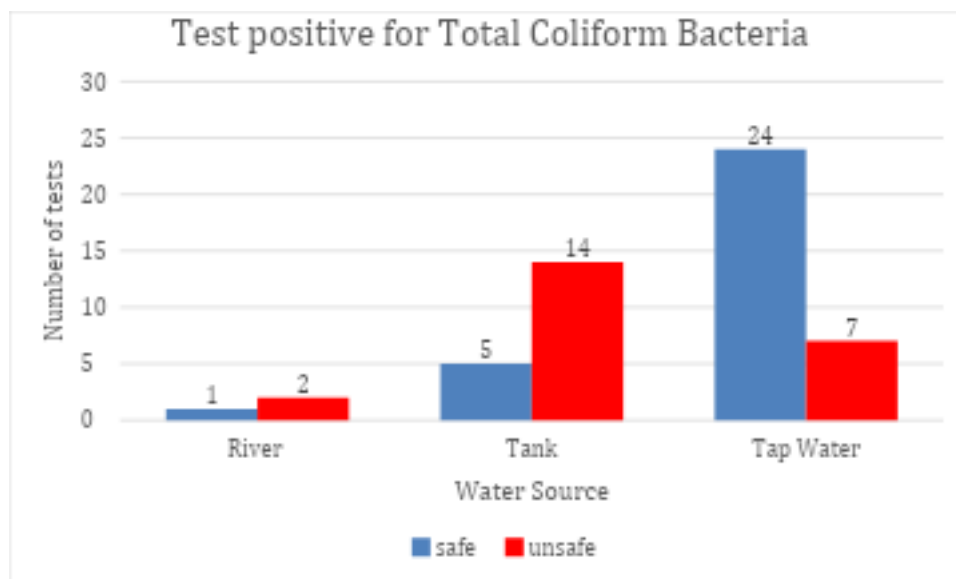
The chemical results were mostly safe as the table below shows. The nitrate and nitrite tests were all safe, the phosphates showed levels that should be monitored in 6 tap water samples, 5 tanks and 1 river. The chlorine also raised concerns with warnings of pH reaching the lower limits of 6 in 11 tap water samples and 4 tank water samples.

	Safe	Warning	Unsafe
Nitrates	53	0	0
Nitrites	53	0	0

Phosphates	41	7	5
Chlorine	37	16	0
pH	50	3	0

The bacterial results highlighted concerns as almost 40% tested positive for total coliform bacteria and E. coli. The one area of concern is the results from the JOJO tanks, with 14 of the 19 testing positive for bacteria. The reasons for the low water quality of the JOJO tanks could be a combination of issues, from poor municipal water to a lack of maintenance and regular cleaning of the tanks. The summary of the results was as follows:

- o **23 out of 53 (43%)** of samples were classified as unsafe for human consumption as they showed unacceptable levels of bacterial contamination.
- o **7 out of 31 (23%)** taps showed bacterial contamination
- o **14 out of 19 (73%)** water tanks showed bacterial contamination
- o **2 out of 3 (66%)** rivers showed bacterial contamination



Follow up

The results were communicated to all schools, and those schools where water was not safe were informed about the results and ways to respond. The collaboration partners will follow up with affected schools with suggested short and medium-term measures and ongoing support.

Limitations

It is critical to emphasise that the data reflects only a snapshot of the broader reality across South Africa's thousands of schools. While we cannot generalise about the water quality status of all schools, the findings do highlight systemic concerns that likely apply nationwide, most notably, the urgent need for an improvement to water and sanitation infrastructure, consistent water quality monitoring and routine maintenance of JOJO tanks and other storage systems within school premises. The Collaboration partners plan to engage the DBE about this.

5. Next Steps

Follow-Up Monitoring | July–August 2025

- Notify affected schools with **“do not drink” warnings**
- Support schools in **re-testing** and **tracking changes**
- **Engage municipalities** to demand tank cleaning and improved infrastructure
- **Equip students and teachers** with continued awareness and advocacy tools and support
- Engage the DBE about the situation and crafting solutions

6. Why This Matters

This project is more than a data exercise—it's a wake-up call. Unsafe water is not just a health issue; it's an education issue, a gender issue, and a human rights issue. To reiterate, while we cannot generalise the water quality status of all schools, the findings do highlight systemic concerns that likely apply nationwide.

When schools lack clean water, the consequences are profound. Children fall ill. Young girls miss school due to inadequate sanitation. Teachers struggle to create safe learning environments. Families are forced to buy bottled water with money meant for food or transport. These are not isolated incidents—they are symptoms of systemic neglect.

7. Young Water Warriors

And yet, in the face of that neglect, it was children who led. With test kits in hand, learners across eight provinces became water scientists, data collectors, and advocates. They tested the very water that their schools and communities rely on. They found contamination, documented risks, and raised their voices. This is not just citizen science—it's civic action. But we must be clear: this project was a snapshot, not a full picture. With 95 schools participating, this represents only a tiny fraction of the more than 24,000 schools in South Africa. The fact that almost 40% of tested water samples were unsafe for drinking is alarming, and suggests that many more schools could be facing similar or worse conditions without even knowing it. This underlines the urgent need for a much broader, nationally coordinated testing and response programme. Every school deserves to know the quality of its water. Every learner deserves clean, safe access.

The Water Warriors Collective Water Quality Campaign is ably led by WaterCANs School Water Testing Project. It proves that **citizen science works**—it empowers communities, strengthens accountability, and exposes gaps and risks in our public systems. But it also

shows us that more must be done. We cannot rely on learners alone to test their water but we can develop young leaders with real agency.

We also need public leaders who are committed to Water Justice. And we need action from those politically and administratively responsible for protecting public health and education. Until then, the Water Warrior Collective will continue to engage with partners on the next steps for these schools as well as support young Water Warriors and their communities who are stepping in where the government has often stepped back. Dignity, safety, and learning should never be compromised by something as basic as water.

8. Acknowledgements

Thanks to our partners, teachers, students, and funders who made this impactful project possible. We hope that this collaboration can build on this project.



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