Fighting for the Future of the Umbilo River:

A Citizen Science Call to Action

2024

SORS-FS

ADOPT A RIVER ECO SOLUTIONS

WATER CAN COMMUNITY ACTION NETWORK

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The Partners on the Project

The **Umbilo River Project** was a collaborative effort between three non-profit organisations:

Save Our Rivers and Sea from Sewage (SORS-FS)

SORS-FS is a registered non-profit organisation committed to holding the eThekwini Municipality and other relevant government bodies accountable for repairing and upgrading damaged wastewater treatment facilities and sewerage infrastructure. These failing facilities are currently discharging toxic sewage into rivers and the ocean, posing a severe threat to both the environment and public health. SORS-FS advocates for urgent infrastructure improvements to prevent further pollution of local waterways.

Adopt-a-River

Adopt-a-River is an NPO that fosters partnerships between corporate, government, and community stakeholders to protect and improve the health of South Africa's waterways. This initiative brings together diverse groups to address water-related challenges and promote collaborative efforts in river conservation and pollution prevention.

WaterCAN

WaterCAN is a water and environmental organisation dedicated to safeguarding South Africa's water resources. The organisation works to raise awareness about water quality issues, advocate for responsible water management, and empower local communities to take an active role in water conservation and pollution prevention. WaterCAN enables residents to monitor water quality and engage in initiatives to protect their water sources. It is an initiative of the Organisation Undoing Tax Abuse (OUTA) NPC.

Introduction

The people of KwaZulu-Natal—and particularly those who rely on the Umbilo River—are paying the price for decades of government neglect, mismanagement, and corruption.

KwaZulu-Natal, like many regions in South Africa, faces significant water challenges due to multiple factors. One of the primary issues is the neglect of water and sanitation infrastructure, compounded by corruption, mismanagement, and political instability. In addition, climate change impacts in the province makes it even more challenging given the poor state of infrastructure.

Municipalities have failed to maintain essential infrastructure adequately, leading to high levels of water loss and frequent service interruptions.

The City of eThekwini loses nearly **182,379,411 kilolitres of water annually**—an astonishing **47% of its total water production** (2022-2023 Oversight Report, MPAC, 2024). Infrastructure is crumbling.

Entire communities are left vulnerable to polluted water, exposing them to severe health risks. Industrial pollution, raw sewage, and toxic waste spills have transformed once-thriving ecosystems into hazardous zones.

Rapid urbanisation and population growth have further increased water demand, placing additional strain on an already struggling system. Environmental factors such as climate change and recurring droughts have exacerbated water scarcity.

Additionally, rising incidents of vandalism and sabotage by criminal syndicates have led to the emergence of so-called “water tank mafias”, who exploit the crisis for personal gain by controlling access to water supply services.

The project undertaken by SORS-FS, Adopt-a-River, and WaterCAN aimed to highlight these provincial challenges by monitoring the Umbilo River. The river is suffering from severe pollution, posing a significant threat to the communities that rely on it for water. High levels of E. coli bacteria have been detected, making it hazardous for use. Industrial pollution from upstream industries has released harmful chemicals into the water, further deteriorating its quality. Recent oil spills have worsened the situation, killing marine life and producing an overwhelming stench. The pollution has severely affected several communities and informal settlements that depend on the river for their water needs.

The Umbilo River, once a lifeline for local communities, is now a toxic sludge of E. coli and industrial runoff. This report exposes the severity of the crisis, using citizen science to hold polluters accountable and demand immediate intervention.

Methodology: Science in Action

The project to monitor and assess the condition of the Umbilo River followed a systematic approach. Armed with WaterCAN test kits, protective gear, and an unshakable determination, field workers Simphiwe Eric Khuzwayo and Lemohang Alphoncina Manyatsa conducted a 22-day investigation in Pinetown, mapping pollution hotspots and collecting real-time data. Project manager Azile Mpukwana oversaw the operation.

Jonathan Erasmus, Eric Khuzwayo, Alphoncinah Manyatsa and Azile Mpukwana

Their methodology included both physical observation and water quality testing.

The team walked the length of the river, documenting conditions and taking weekly water samples, with a focus on bacterial contamination, particularly **E. coli levels,** which exceeded safe limits at every test site.

Despite facing inaccessible terrain in the Paradise Valley Nature Reserve and industrial areas of Westmead, the team covered **11.8 km of river**—an unprecedented grassroots effort in the fight for water justice.

Field Monitoring and Assessment

The team began at Stapleton Road, Sarnia, Durban, walking upstream towards the industrial area of Westmead, where they monitored the river's condition before proceeding downstream towards the Umbilo Waste Treatment Plant, located below a residential area. They documented issues such as debris accumulation, high E. coli levels, illegal dumping of industrial waste, and infrastructural failures such as broken pipes and manholes.

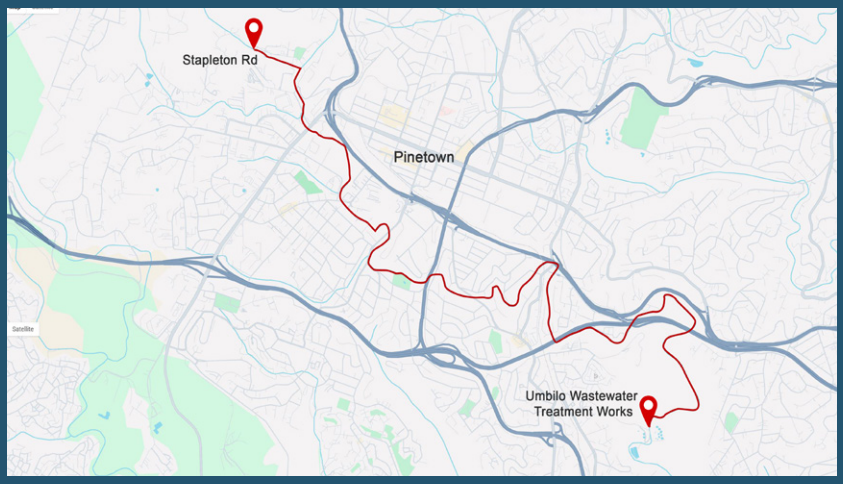
The total river distance observed and tested covered 11.8 km. However, not every part of the river was accessible. The team was unable to traverse the Paradise Valley Nature Reserve due to thick foliage. Similarly, certain areas in Westmead were inaccessible due to overgrowth. Despite these challenges, every effort was made to access as much of the river as possible.

The team was equipped with protective clothing and a mobile phone.

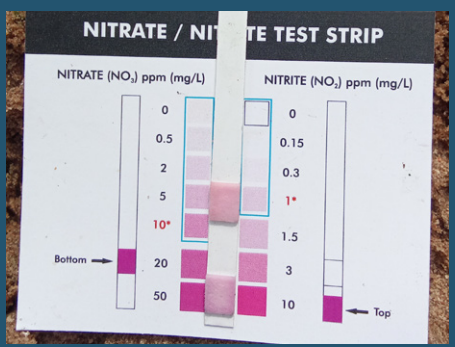
Project Phases

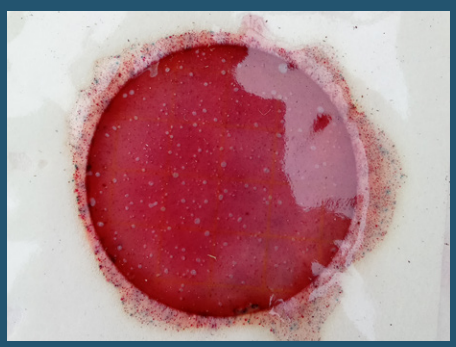
The project was divided into two phases.

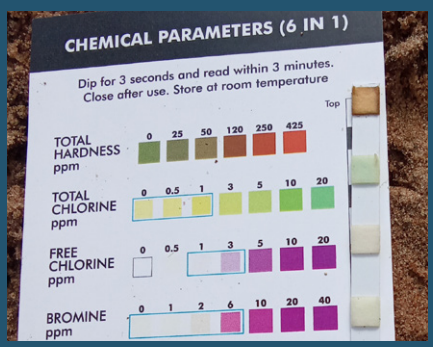
Phase 1 (1–15 April):
The field team inspected the river from Stapleton Road to Westmead. This phase provided a general assessment of the river's condition.



Phase 2:
The team retraced their steps from Phase 1 and continued to the Umbilo Wastewater Treatment Works. This phase incorporated water testing, in addition to observation.



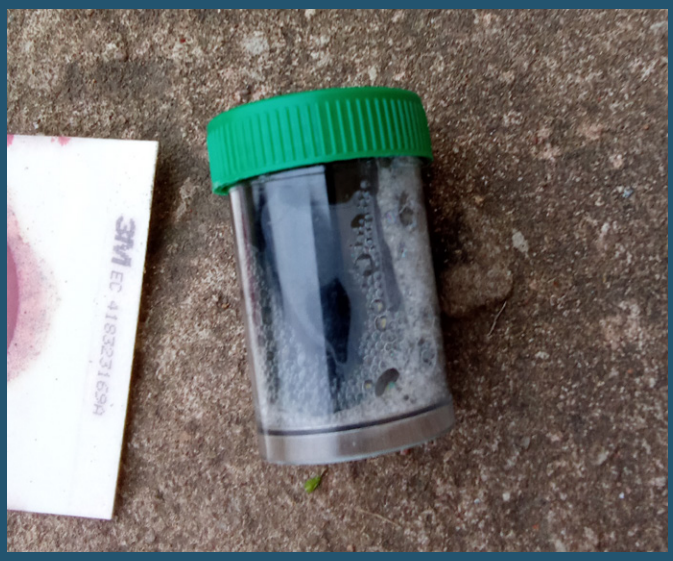


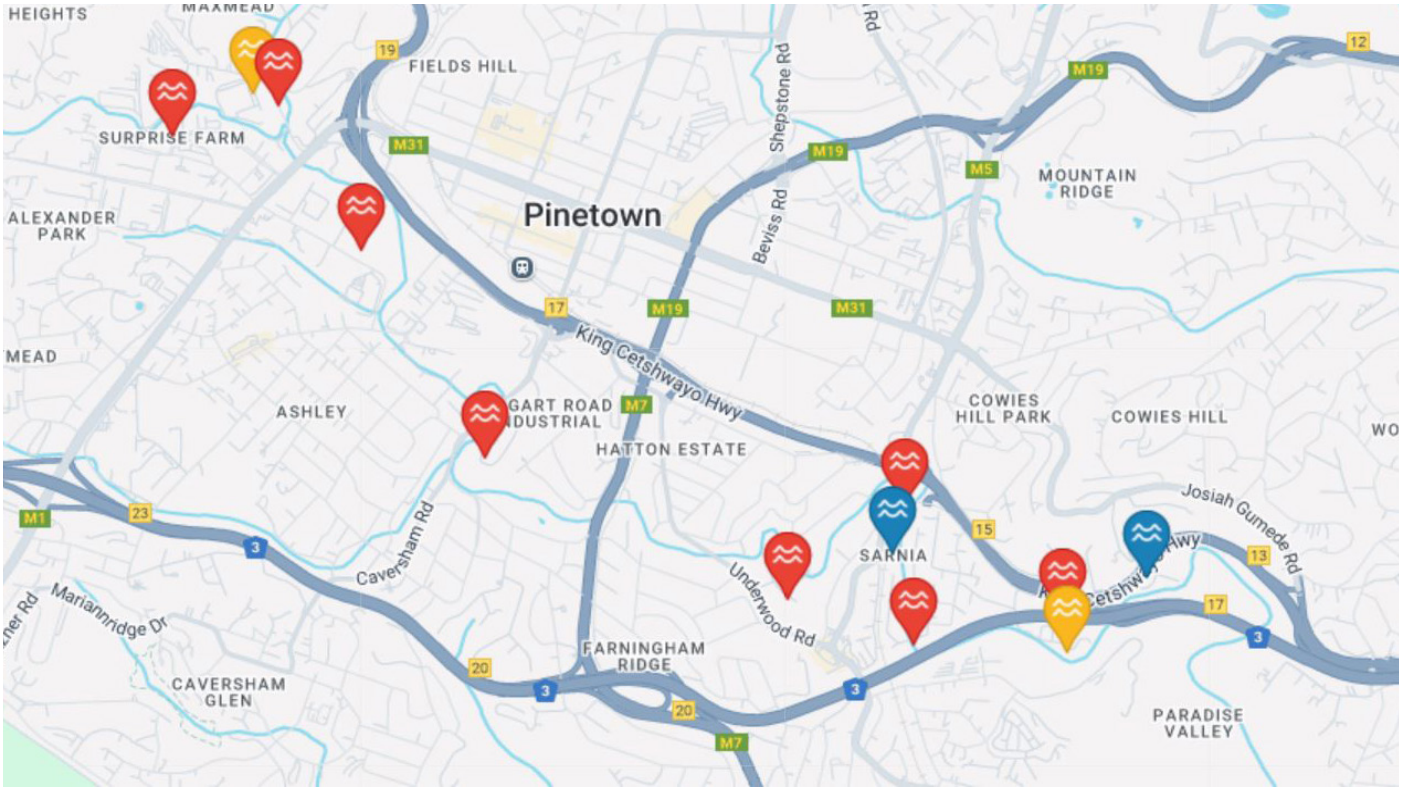


Water Sampling and Testing

To scientifically assess water quality, the team used the WaterCAN testing kit. Weekly water samples were taken at various points along the river, primarily measuring bacterial contamination, with a focus on E. coli levels, which were consistently high.

The test results were uploaded to the WaterCAN web-based app, a platform designed to track and share water quality data. This allowed for transparent reporting and real-time data access for stakeholders. The results, which confirmed the severity of pollution in the Umbilo River, were made publicly available for review by environmental bodies and community members.





Findings: A River in Crisis

The assessment revealed multiple environmental hazards, including:

- Solid waste, including plastic debris and other contaminants from illegal dumping, is choking the river.
- Debris from heavy rains and the 2022 floods blocking the river's natural flow.
- Raw sewage continuously leaks into the river from broken pipes and open manholes, resulting in dangerously high E. coli levels - posing a severe health risk.
- Illegal dumping of solid and industrial waste. Factories in Westmead are illegally discharging toxic chemicals, turning sections of the river into foaming, foul-smelling cesspools.
- Unnatural foamy water, likely from chemical pollutants.
- Discoloured water in shades of grey, brown, black, and green, indicating contamination.
- Inaccessible areas due to debris buildup.
- Another major challenge was the lack of an accessible reporting mechanism to alert the eThekwini Municipality. Despite repeated reports to the eThekwini Municipality, **no action has been taken.** Authorities have failed to issue even basic reference numbers for reported pollution incidents, indicating a lack of accountability and municipal oversight.

A Citizen Science Solution: What Must Be Done

The pollution of the Umbilo River is not just an environmental tragedy—it is a public health emergency. The partners of this short research are calling for some urgent actions to address pollution in the Umbilo River:

- **Immediate Infrastructure Repairs:** Fix all broken pipes, leaking sewage infrastructure, and open manholes.
- **Dedicated Clean-Up Teams:** A four-person task force, funded by corporate and municipal partners, must be deployed immediately to remove waste and debris.
- **Regular Independent Water Testing:** Weekly citizen-led testing using WaterCAN kits and monthly testing using an accredited laboratory.
- **Municipal Accountability Mechanisms:** The eThekwini Municipality must establish a clear and accessible reporting system to track environmental violations and enforce corrective measures.

- **Corporate Accountability**: Industries must be held responsible for their pollution, with strict enforcement of environmental laws and punitive fines for violations. Large-scale clean-up efforts involving local businesses and the municipality.
- **Community Mobilisation:** Residents must be empowered to monitor, report, and resist water pollution through training programs and active engagement.

These combined efforts aim to restore natural water flow, prevent recurring pollution, and ensure the long-term health of the Umbilo River.

Conclusion

This is not just about the Umbilo River. It is about every polluted river, every community denied clean water, and every official who turns a blind eye.

The Umbilo River Project has highlighted severe pollution levels due to debris accumulation, high E. coli levels, illegal dumping, chemical pollutants, and failing infrastructure. These findings underscore urgent public health and environmental concerns.

Government negligence and corporate greed at the expense of our health and environment must not be allowed to continue. Civil society must continue to push for accountability, create awareness in communities, and build action through citizen science.

Collaboration between civil society, the municipality, local businesses, and corporate sponsors will be essential to restoring the river's health, improving accountability, and ensuring sustainable water management. It is too important for us not to work together. Together, we can reclaim our rivers and restore our right to clean water.

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