



The Future of Industrial & Municipal Water Reclamation

Introducing the Macro-Porous Cation Exchange **Process (MCEP)** & **Advanced** Filtration Technologies.

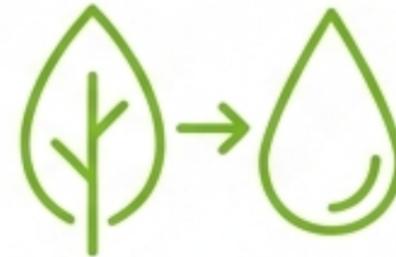
A Sustainable Solution for South Africa's Water Crisis

Tasmania Ltd. proposes a unique methodology where design, installation, and maintenance produce cost-effective results superior to current Lime Dosing or Reverse Osmosis systems.



The Technology

Custom-made, scalable plants using MCEP and MMEF systems. Converts Acid Mine Drainage (AMD) and sewage into usable potable or industrial grey water.



The Breakthrough

A chemically induced process that turns hazardous contaminants into **inert waste**, solving the sludge disposal crisis and eliminating biohazard transport risks.



The Economics

Introduction of a proprietary new catalyst that is **80% cheaper** than incumbent solutions, drastically lowering the cost per kilolitre for municipalities.



The Local Advantage

Wholly South African developed and designed IP. Supports local manufacturing, job creation, and is B-BBEE Level 2 compliant.



Environmental degradation at Tudor Shaft, Gauteng.

The Context: Critical Contamination at the Source

The Dual Crisis

South Africa faces water scarcity compounded by severe heavy metal contamination (Arsenic, Lead, Mercury, Uranium) in mining belts and communities like Snake Park.

The Infrastructure Gap

Developing traditional infrastructure such as dams and long-distance pipelines is cost-prohibitive. Transporting contaminated water to central plants is logistically failing.

The Strategic Need

The solution requires treatment *at the source*—cleaning contaminated water where it sits to prevent environmental spread and avoid expensive transport costs.

Redefining Treatment: We don't take contaminants out of the water...

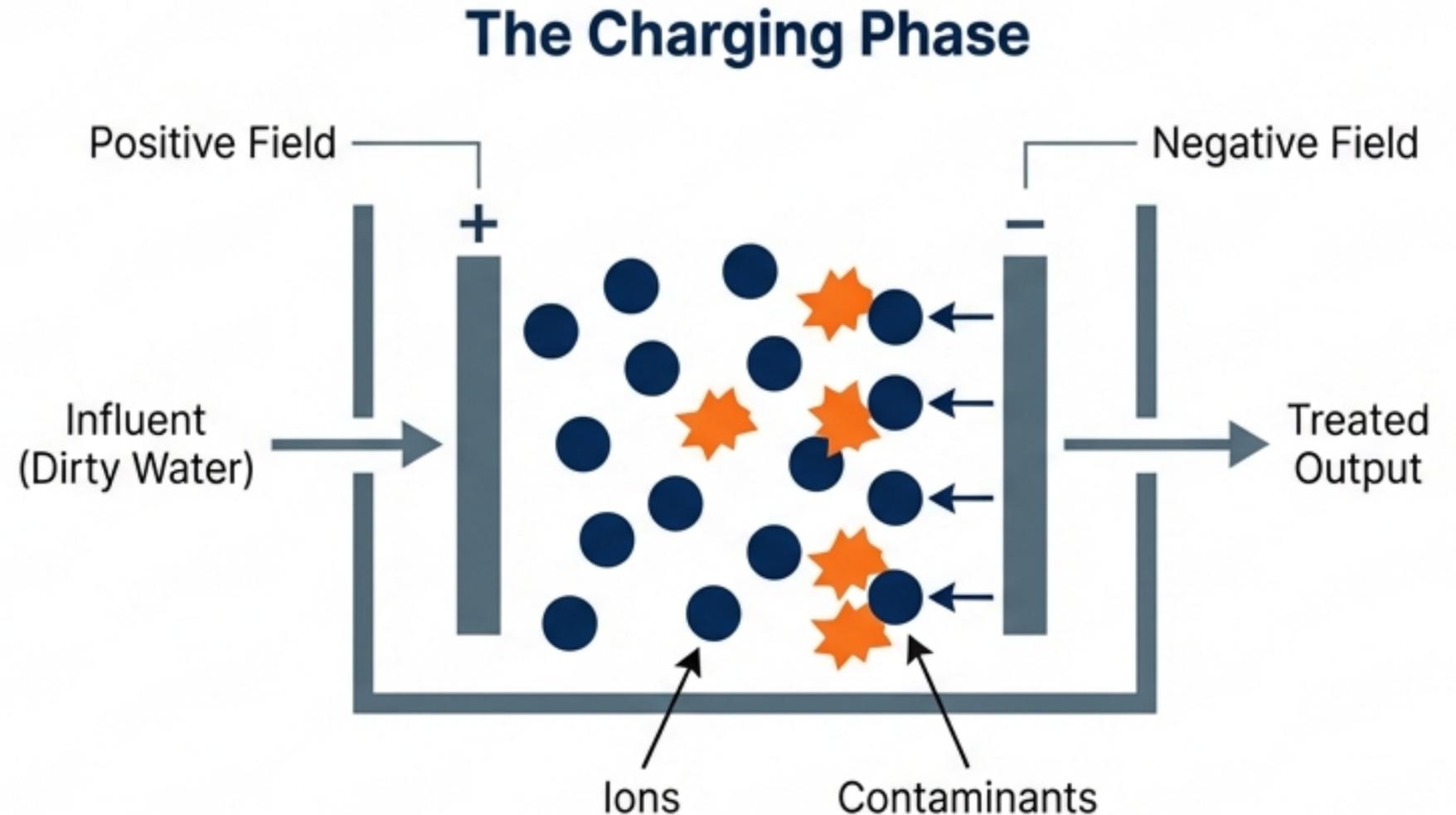
...We take the water out of the contaminants.

The Core Concept: MCEP

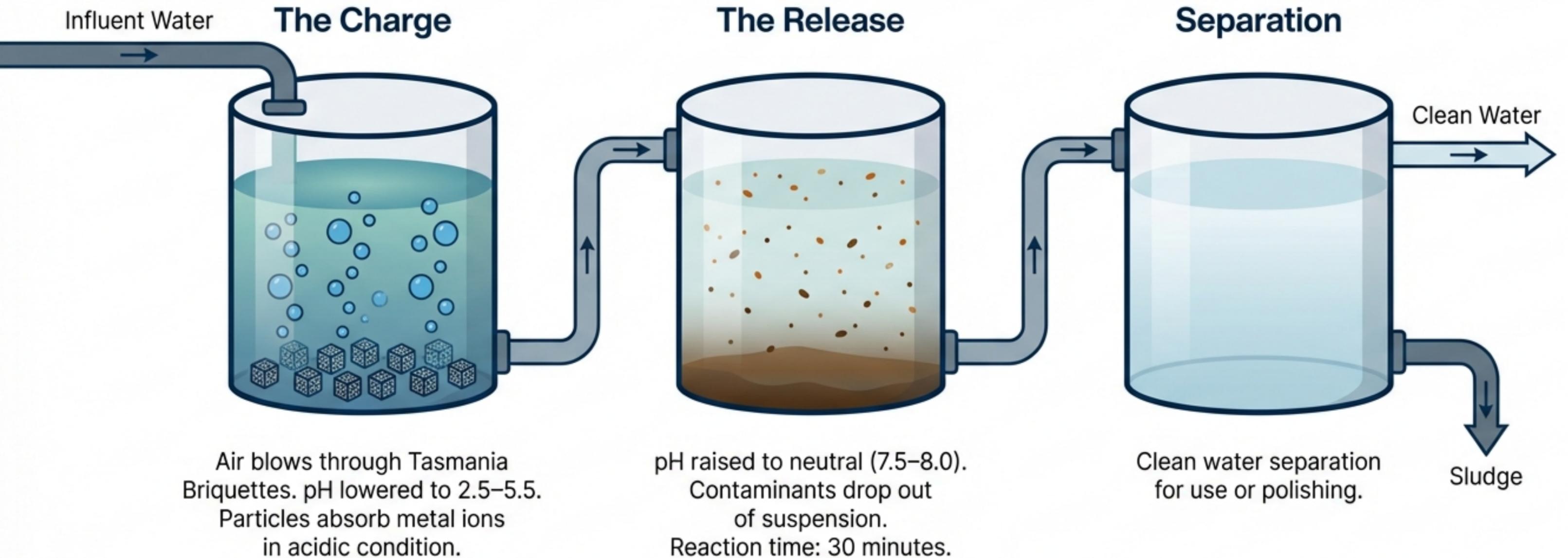
The Macro-Porous Cation Exchange Process (MCEP) utilizes a chemically induced process where water is charged to create opposing negative and positive fields.

The Performance

This electrostatic environment allows ions to attract and hold suspended and dissolved contaminants, achieving a **99% heavy metal removal rate**. Unlike biological systems, this is a rapid chemical reaction.



The Process: From Acidic Charge to Clean Release



Key Metric: Total Reaction Time: **30–40 Minutes** (vs. hours for biological systems).

Solving the Sludge Crisis: Inert Waste & Simplified Disposal

Unlike traditional methods, MCEP utilises a reverse chemical process to release contaminants. The resultant sludge is rendered chemically inert.

Standard Disposal (Traditional)



- Toxic biohazard sludge. Requires expensive transport. Strict specialized landfill compliance.

MCEP Disposal (Tasmania)



- **Chemically Inert.** Reverse chemical process renders sludge safe. Suitable for standard land disposal. >80% reduction in sludge volume.

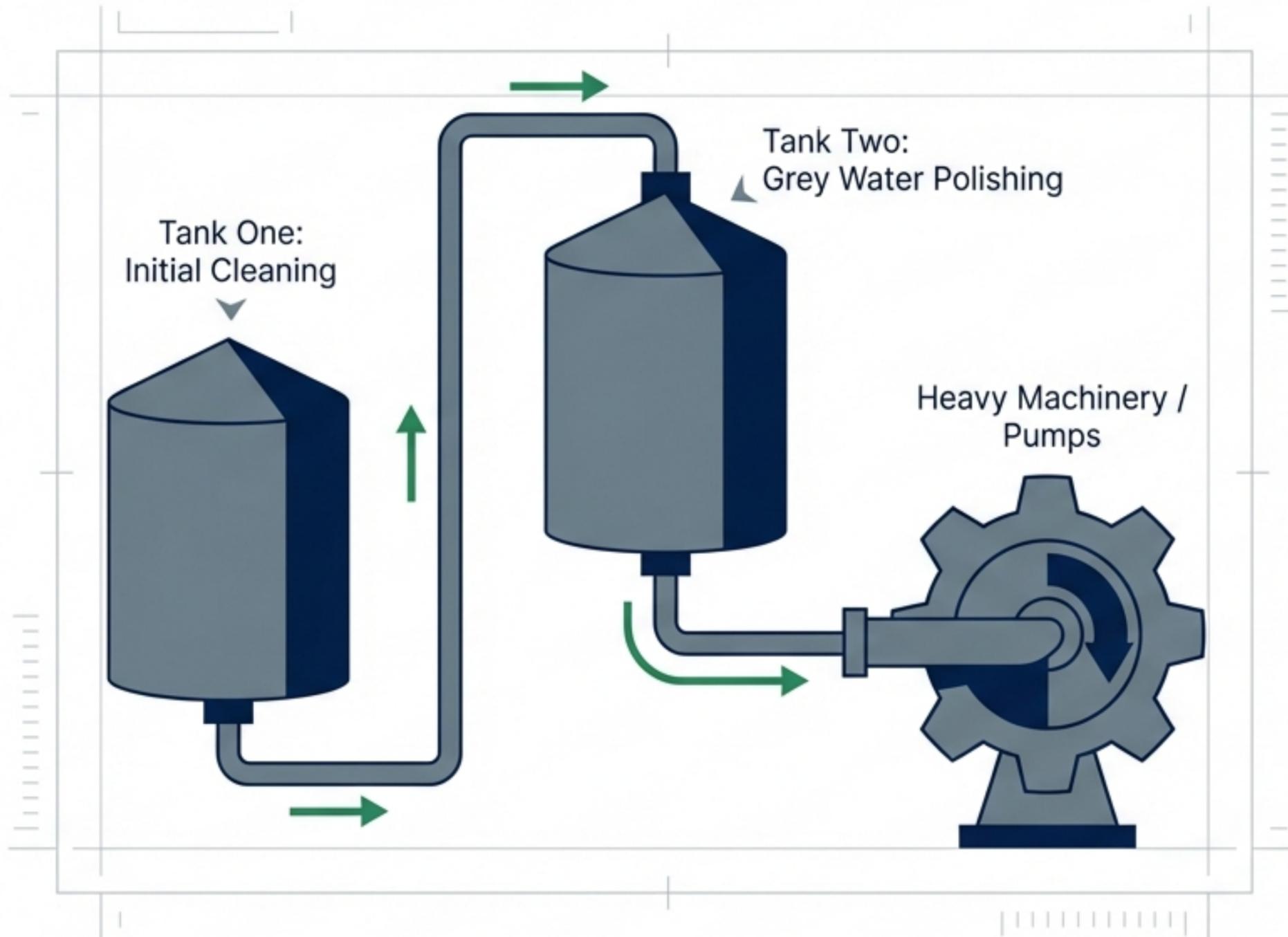
Engineering for Scale: SBS Tank Configurations



Scalability & Maintenance

- Modular design allows parallel installation to increase volume indefinitely (e.g., 1 million litres/day).
- Low Maintenance: Systems require backwashing only once a month without human intervention.
- No frequent membrane changes required.

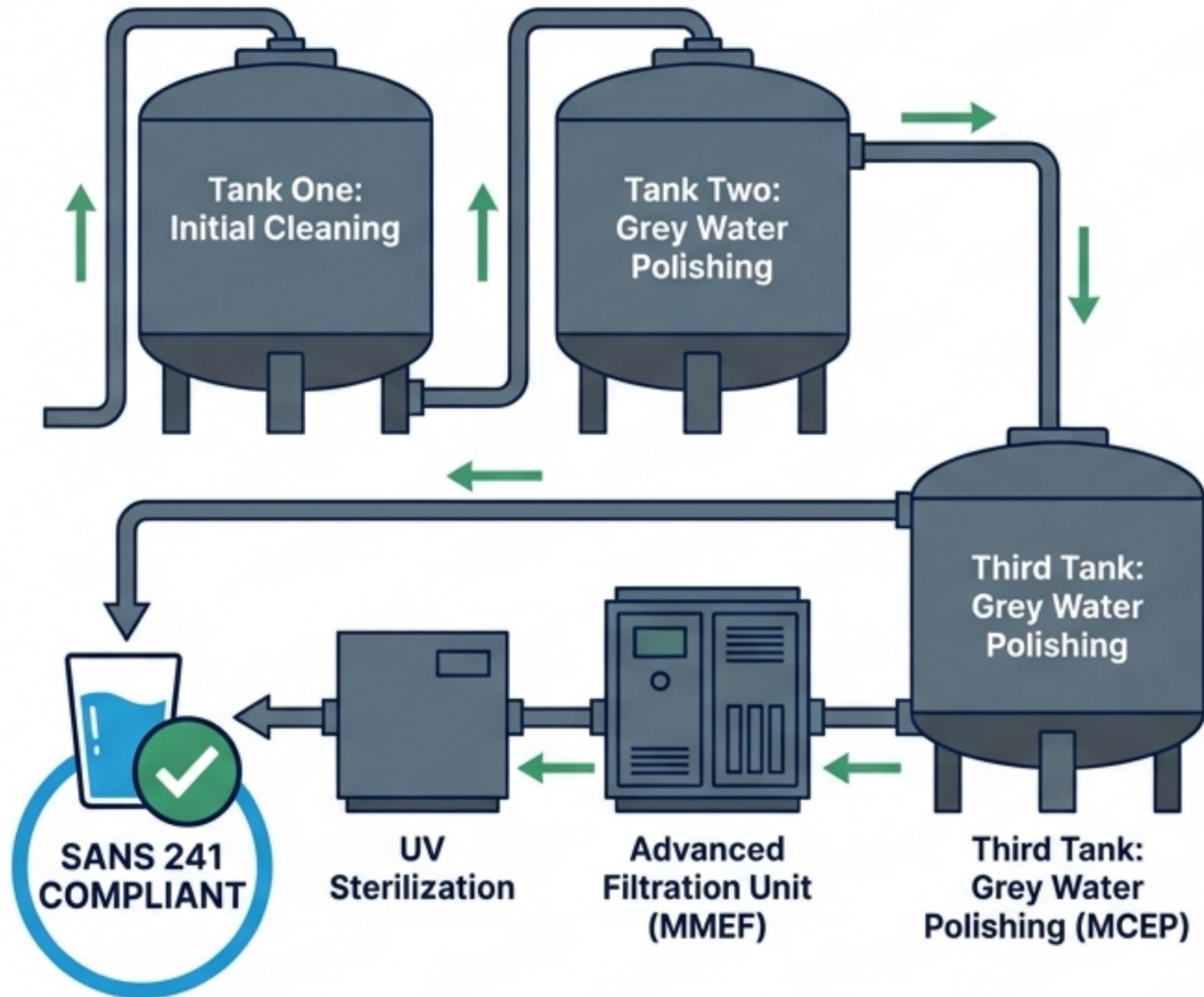
Tier 1 Output: Industrial Grey Water & Asset Protection



Application: Mining & Industry

- **Asset Longevity:** Prevents scaling, corrosion, and fouling of pumps, pipes, and machinery.
- **Recycling Loop:** High-standard grey water ready for immediate client reuse (Zero Liquid Discharge potential).
- **Efficiency Stats:**
 - COD Removal: 95%
 - Colour Removal: 95%

Tier 2 Output: Potable Water Standards (SANS 241)



The MMEF & UV Process

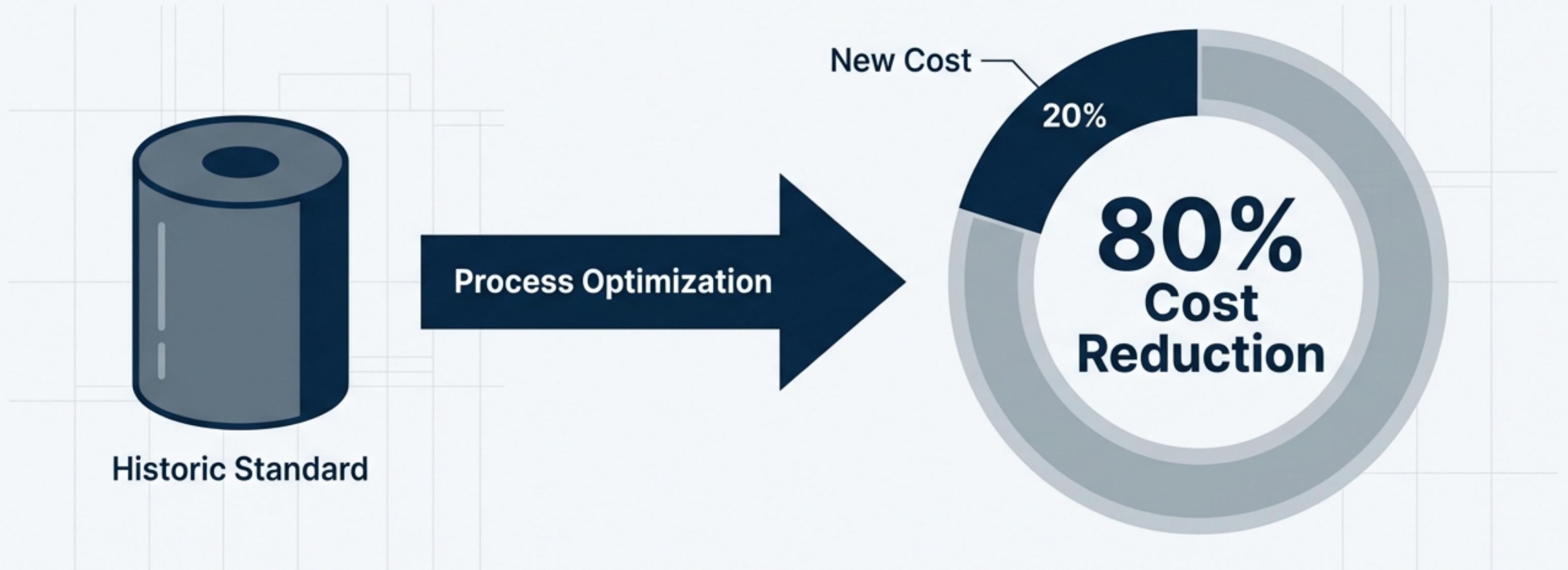
- **Media 1:** Cation exchange for ammonia and hardness.
- **Media 2:** MnO coating, filters down to 3 microns (Iron/Manganese removal).
- **Media 3:** Micro-pore absorption for VOCs, taste, and odour.
- **UV System:** Deactivates 99.99% of pathogen DNA (E. Coli, Cholera).
- **Result:** Fully compliant with SANS 241 drinking water standards.

The Competitive Landscape: MCEP vs. Alternatives

	Sand Filtration	Reverse Osmosis (HiPRO)	Chemical Dosing (Lime)	 Tasmania MCEP
Inert Waste Output	✗	✗	✗	✓
Asset Protection	✗	✗	○	✓
Scalability (>4M Litres)	✗	✗	○	✓
Potable Standard (SANS 241)	✗	○	○	✓
Low Maintenance Cost	○	○	✗	✓

MCEP Advantage: Complete removal of heavy metals with low power requirements (0.8 KW per megalitre) and no biohazard residue.

The Economic Breakthrough: 80% Cost Reduction



Tasmania has transitioned from the standard briquette to a newly acquired proprietary catalyst.

The Impact: The new catalyst is 80% less costly than the incumbent solution.

Result: Drastically reduced unit cost per kilolitre, making large-scale municipal remediation financially viable.

Holistic Rehabilitation: Tasmania 110 Soil Remediation

The Challenge:

Soil contamination (Arsenic, Lead) at sites like Snake Park creates food insecurity and severe health hazards.

The Solution: Tasmania 110

A heavy metal remover powder blend of catalysts and reactive minerals.

The Method & Results:

- Plowed into contaminated soil (0.5% - 2% mix).
- Remediates heavy metals in **4 to 7 days**.
- Restores land for agriculture without expensive trucking or landfilling.



Independent Validation & Lab Results

WATER TEST Report

Lab NO: 39746B



**Lead Soil
Reduced:
0.890 mg/L →
<0.001 mg/L**
(99.9% Reduction)

WATER TEST Report

Lab NO: 62891A



**Cadmium
Reduced:
5872 mg/L →
<0.001 mg/L**

SOIL TEST REPORT

Lab NO: 95921A



**Arsenic
Reduced:
3461 mg/kg →
13.0 mg/kg**

Data verified by UIS Sediba Laboratory & SANAS Accredited reports.

Local Impact, Security & Strategic Alignment

Empowerment



B-BBEE & Jobs

Helvetica Now Display Medium

Level 2 Associate Company.
Focus on employment and mentorship of young black graduates.

Wholly South African designed and manufactured.

Security



Site Security

Helvetica Now Display Medium

Associate ICT company provides biometric recognition, thermal cameras, and 24/7 command centre monitoring to prevent theft and vandalism.

Engagement



Stakeholders

Helvetica Now Display Medium

Active engagements with DMRE, MINTEK, DEAFF, Umgeni Water, and various municipalities.

Strategic Outlook & Next Steps

SUMMARY

- **Process:** Chemically induced ion exchange rendering waste **inert**.
- **Scale:** Capability up to 4.3 million litres per tank.
- **Quality:** From industrial grey water to SANS 241 potable standards.
- **Disruption:** New catalyst technology driving an **80% reduction** in input costs.

Partnership & Implementation

We invite partners, investors, and government stakeholders to discuss the specific deployment of this new catalyst and review the resulting financial models.