



ABOUT US

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***“We can turn back the wheel of deterioration. We can do it within a generation
— if the decision to act is made now”***

Soldevco is a proudly South African, 100% youth- and women-owned, award-winning, family-led cleantech innovation company developing integrated water solutions that restore overloaded water systems, strengthen circular food-and-water economies, and advance climate-positive infrastructure for water, agriculture, aquaculture and environmental sustainability. Through advanced engineering, biological restoration and environmental intelligence, we improve water quality, resource efficiency and ecosystem resilience while prioritising retrofit and modernisation before wholesale replacement of existing infrastructure.

Who We Are

Soldevco was co-founded in 2021 by **Alisia Rautenbach**, a civil engineer and cleantech entrepreneur, and her father, **Heindré Rademan**, a civil engineer, infrastructure executive and inventor. Following Alisia's move to Germany, Heindré became Soldevco's CEO and Sole Director in July 2026, leading strategy, technology and operations. Alisia remains founder, sole shareholder of all 100 issued shares and strategic adviser.

The company was born from a simple but difficult question — one Alisia asked her father:

“What are we going to do about it?”

The question that became the foundation of Soldevco.

That question emerged from concern about the deterioration of South Africa's water resources and environmental infrastructure — declining Blue Drop, Green Drop and No Drop assessments, overloaded wastewater treatment works, polluted rivers, increasing pressure on agriculture, threats to communities, public health and food security, and exceptionally high unemployment among qualified young professionals.

Rather than using her personal savings solely for her own advancement, Alisia chose to invest them in establishing a green and cleantech company capable of giving back to the planet. Her vision was not only to restore damaged water systems, but also to create meaningful work, practical experience and career-development opportunities for young professionals — particularly young women pursuing careers in engineering, water, agriculture and environmental science.

For Soldevco, water stopped being only an engineering challenge. It became a human responsibility.

Our Purpose

Soldevco exists to restore overloaded and inefficient water systems so that ecosystems, communities, industries and food-production systems can thrive.

- Wastewater should become a resource.
- Sludge should be reduced, not buried.
- Biology should be restored rather than suppressed through excessive chemical dependency.
- Agriculture, aquaculture and aquaponics should operate within circular, resource-efficient systems.
- Existing infrastructure should be modernised before it is unnecessarily replaced.
- Young professionals — particularly young women — must be empowered to lead Africa's water and environmental transition.

Restoring critical water and environmental systems.

Developing the people who will lead and maintain them.

Our Technology

Ultra-Oxygen™ — the missing link in aeration.

Conventional aeration moves air. Ultra-Oxygen™ transforms it — delivering the full bubble spectrum that makes biological, physical and electrochemical treatment possible.

At the centre of Soldevco's innovation ecosystem is the patented **Ultra-Oxygen™ (UO₂) Micro & Ultrafine Bubble Generator** — an advanced hydrodynamic gas–liquid entrainment system using cavitation and hydrodynamic shear to improve oxygen transfer efficiency, strengthen biological treatment processes, reduce sludge generation and enhance water quality across municipal, industrial, agricultural and aquaculture environments.

Rather than working against natural biological systems, Ultra-Oxygen™ is designed to support and accelerate them. The platform is designed to generate the full spectrum of microbubbles (1–<100 µm) and ultrafine bubbles (<1 µm), in line with ISO 20480 terminology — enabling physical, biological and electrochemical processes that go well beyond conventional aeration.

Because the technology is delivered as a side-stream, retrofit-ready solution, it modernises existing infrastructure without major civil works — enabling faster adoption, lower disruption and broader impact across both developed and emerging markets.

Integrated focus areas

Wastewater restoration	Biological optimisation	Water reuse	Environmental recovery
Agriculture & irrigation	Aquaculture & aquaponics	Sustainable food systems	Circular resource management

Measured Outcomes and Modelled Potential

Field deployments, application trials and modelling have produced site-dependent findings and adoption-based scenarios:

Up to 95% Oxygen transfer efficiency	Up to 50% Reduction in aeration energy consumption	30–80% Reduction in sludge generation
Up to 90% Removal of organic pollutants (COD/BOD)	Up to 500% Biological restoration improvement	Up to 20% Crop-yield improvement
DO ↑ Improved dissolved oxygen and biological stability	Chemicals ↓ Reduced dependency and improved reuse	Modelled climate potential ~2 MtCO ₂ e/yr at 100% adoption in the defined scenario · ~968 tCO ₂ e/yr per modelled 2.5 ML/day facility

Reported ranges depend on site conditions, influent quality, process configuration, operating period and application type. Every external claim must be linked to the relevant project or trial evidence, baseline and assumptions. Climate figures are theoretical, modelled adoption scenarios—not achieved global outcomes—and the potential impact increases as adoption increases.

Integrated Cleantech Solutions

Ultra-Oxygen™ Micro & ultrafine bubble systems for oxygenation, biological enhancement and process optimisation.	UO₂-Drylet Biocatalyst-driven bioremediation supporting organic breakdown, sludge reduction and ecosystem recovery.
SmartFarmer™ & AquaSmart™ Farmer support, technology validation, training and digital intelligence for circular agriculture, aquaculture and controlled-environment food production.	Electrochemical enhancement Integrated polishing, microbial control and advanced oxidation support.
Eco Water Systems™ (EcoPools & EcoLake) A strategic solution family for EcoPools, EcoLakes, estate lakes, dams, rivers and ecological water bodies — Ultra-Oxygen™ oxygenation, biological balancing and monitoring for clarity and stable biology with reduced chemical reliance.	Modular treatment systems Containerised, retrofit-ready solutions with reduced reliance on major civil works.
BioSmart™ — Biological Intelligent Automation Sensor-driven monitoring of dissolved oxygen, pH, EC and ORP, designed to guide and progressively automate biological treatment performance.	Training & technical support Assessment, implementation, monitoring, operator training and continuous optimisation.

Why clients choose Soldevco

Retrofit-ready	Energy efficiency	Reduced chemical reliance	Sludge reduction potential
Circular resource recovery	Smart monitoring	Project-specific field evidence	Eco-friendly environmental restoration

Sectors We Serve

 Wastewater treatment & reuse Restoring overloaded works and unlocking treated water for safe reuse.	 Municipal infrastructure modernisation Retrofitting ageing plants without major civil works or downtime.
 Agriculture, aquaculture & aquaponics Stabilising water quality for healthier crops, fish and circular yields.	 Environmental restoration & remediation Returning stressed rivers, dams and lakes to ecological health.
 Resource recovery & sludge reduction Cutting sludge volumes and recovering value from waste streams.	 Water-energy-food nexus optimisation Reducing energy and water use across interconnected systems.
 Climate resilience & emissions reduction Reducing aeration energy demand and associated emissions where site conditions and operating data support the outcome.	 Controlled-environment food production Reliable water conditions for greenhouses and indoor farming.

SmartFarmer™ — Farmer Support, Technology Validation and Digital Innovation

SmartFarmer™ is Soldevco's practical farmer-support and circular-agriculture platform for aquaponics, aquaculture, hydroponics and controlled-environment agriculture. It connects field testing, technology validation, grow planning, water-quality and IoT data, training, troubleshooting and product support. The SmartFarmer™ Experimental Site in Stellenbosch provides a real-world environment in which selected technologies can be trialled, optimised and documented before wider client deployment.

The platform and experimental site support

- Farmer support, grow planning and practical training
- Technology and product testing under South African conditions
- Nutrient-management and irrigation-water optimisation
- Water-quality stabilisation and biological restoration
- IoT and environmental-monitoring integration
- Aquaculture, aquaponics and hydroponics development
- Zero-waste and circular-system development
- Operator training, troubleshooting and continuous improvement

This integrated approach supports farmers, municipalities, water operators, aquaculture businesses and industrial users with practical, evidence-based recommendations grounded in hands-on operating experience. Validation remains technology-, site- and application-specific; it does not imply that every solution or outcome is universally proven.

Validate under South African conditions. Benchmark measurable performance. Improve deployment reliability. Refine systems using field data.

Family Legacy, Women, Youth and Capacity Building

Soldevco is a father-and-daughters family-led cleantech company and remains proudly 100% youth- and women-owned. Alisia Rautenbach remains founder, sole shareholder and strategic adviser after moving to Germany, while Heindré Rademan serves as CEO and Sole Director.

Heindré also works alongside his youngest daughter, Lizelle Rademan, Soldevco's Growth, Digital Platforms & Stakeholder Engagement Manager, who joined Soldevco full-time in 2026. Lizelle supported the company from its earliest days by developing and maintaining its website and helping build its digital and online presence. She now contributes directly to growth, digital platforms, marketing and stakeholder engagement.

Both Alisia and Lizelle share their father's commitment to improving people's lives and protecting the planet for their children, grandchildren and generations to come. As a mother, Lizelle understands the connection between clean water, a safe environment, resilient food systems and a healthy society. This family purpose extends into Soldevco's broader commitment to creating practical pathways for young professionals—particularly young women—to become owners, innovators, decision-makers and future industry leaders.

Practical advancement includes

- Field exposure in wastewater, agriculture, aquaculture and environmental restoration
- Technical and commercial skills development
- Research, validation and data interpretation
- Presentation, webinar and stakeholder-engagement opportunities
- Leadership development and access to experienced national and international mentors
- Career-development pathways in cleantech and sustainable infrastructure

Young professionals across marine science, aquaculture, agricultural innovation, water process and environmental science are actively involved in field projects, wastewater-treatment initiatives, aquaculture systems, environmental restoration programmes and circular-agriculture development. Through direct exposure to operational systems and real-world implementation, Soldevco aims to help develop the next generation of environmental and infrastructure leadership needed across Africa.

This is not charity.

This is nation-building.

This is women and youth advancement.

This is long-term environmental stewardship.

This is investment in future resilience.

Field Evidence, Collaborations and Current Projects

Soldevco's evidence base includes operational trials, demonstrations and collaborative initiatives across municipal wastewater, winery effluent, agriculture, aquaculture and ecological water systems, alongside current proposals and development opportunities. Participation in UNIDO and UKTP programmes has supported international market engagement.

Each reference below must be read according to its stated status. Performance outcomes remain site- and application-dependent, and prospective work is not presented as a completed deployment.

Stellenbosch University — research and validation collaboration	Spier Wine Estate WWTW — winery-effluent field pilot
Klapmuts Municipal WWTW — municipal optimisation trial	Waterfall Equestrian — rehabilitation proposal; approval pending
Bresler Pool — Eco Water Systems demonstration	Harvest Fresh — crop-performance trials
Practical Aquaponics South Africa — aquaponics trials	Onna Greens, Norway — agricultural field application

Waterfall Equestrian Estate — proposed phased ecological rehabilitation

Soldevco has prepared a phased ecological rehabilitation proposal for Waterfall Equestrian Estate, combining biological restoration, phytoremediation, Ultra-Oxygen™ oxygenation, polishing and monitoring. As at 30 July 2026, the project is awaiting commercial approval and scheduling; proposed outcomes are not presented as implementation results.

Bresler Pool — ecological demonstration

At Bresler Pool, Soldevco applied its Eco Water Systems approach — Ultra-Oxygen™ side-stream oxygenation, biological balancing and a structured water-testing protocol — to an ecological swimming pond. The demonstration informed Soldevco's evolving EcoPools methodology and operating procedures; results remain specific to the site and test period.

Agricultural and aquaponics field evidence

Harvest Fresh, Practical Aquaponics South Africa and Onna Greens trials have contributed application-specific evidence on dissolved oxygen, irrigation water, biological stability and growing conditions. Results remain linked to each site's baseline, test period and operating conditions.

Awards and Recognition

TIA Grassroots Innovation Awards Ultra-Oxygen™ Enhanced Bioremediation System — Alisia Rautenbach, Social Impact 2nd Prize (2025)	Agri-Tech Pioneer Award Soldevco / Ultra-Oxygen™ — Africa finalist, Top 4 (2025)
GCIP-SA Soldevco / Ultra-Oxygen™ — cleantech accelerator finalist (2024)	Solar Impulse Foundation Ultra-Oxygen™ — international sustainability recognition (2024)

Our Strategic Position

Soldevco operates at the intersection of water security, climate-positive infrastructure, food production, environmental restoration, circular resource use, infrastructure modernisation, women and youth advancement, and green-skills development.

The company is developing an integrated cleantech and infrastructure platform that combines Ultra-Oxygen™, biological enhancement, SmartFarmer™ support and validation, environmental intelligence, training and project delivery. Its solutions prioritise practical retrofit and evidence-led optimisation of existing infrastructure, supporting scalable adoption across developed and emerging markets.

Produce More. Use Less.

One platform, two outcomes — greater productivity from every water system, with fewer resources consumed.

Produce More

- ↑ Crop yield and growing consistency
- ↑ Water clarity and quality
- ↑ Dissolved oxygen and biological stability
- ↑ Water reuse and resource recovery

Use Less

- ↓ Aeration energy consumption
- ↓ Chemical dependency
- ↓ Sludge generation
- ↓ Freshwater demand and waste

Vision and Mission

VISION

To be globally recognised as a leader in innovative, groundbreaking water solutions.

MISSION

Empowering water-dependent industries to achieve more with less — minimising water, energy and chemical use through cutting-edge sustainable innovation.

Our Commitment

We believe much of the deterioration affecting water systems and environmental infrastructure can still be reversed — but only through decisive action, scientific accountability, infrastructure modernisation, practical implementation and long-term collaboration.

Not through temporary fixes. Not through technologies designed to mask deeper systemic failures. But through measurable restoration and sustainable engineering solutions implemented at scale.

The science exists. The technology exists. The implementation capability exists.

What remains is the collective decision to act.

Every Soldevco project is guided by one principle: restore natural systems, empower people, and leave every site more resilient than we found it.