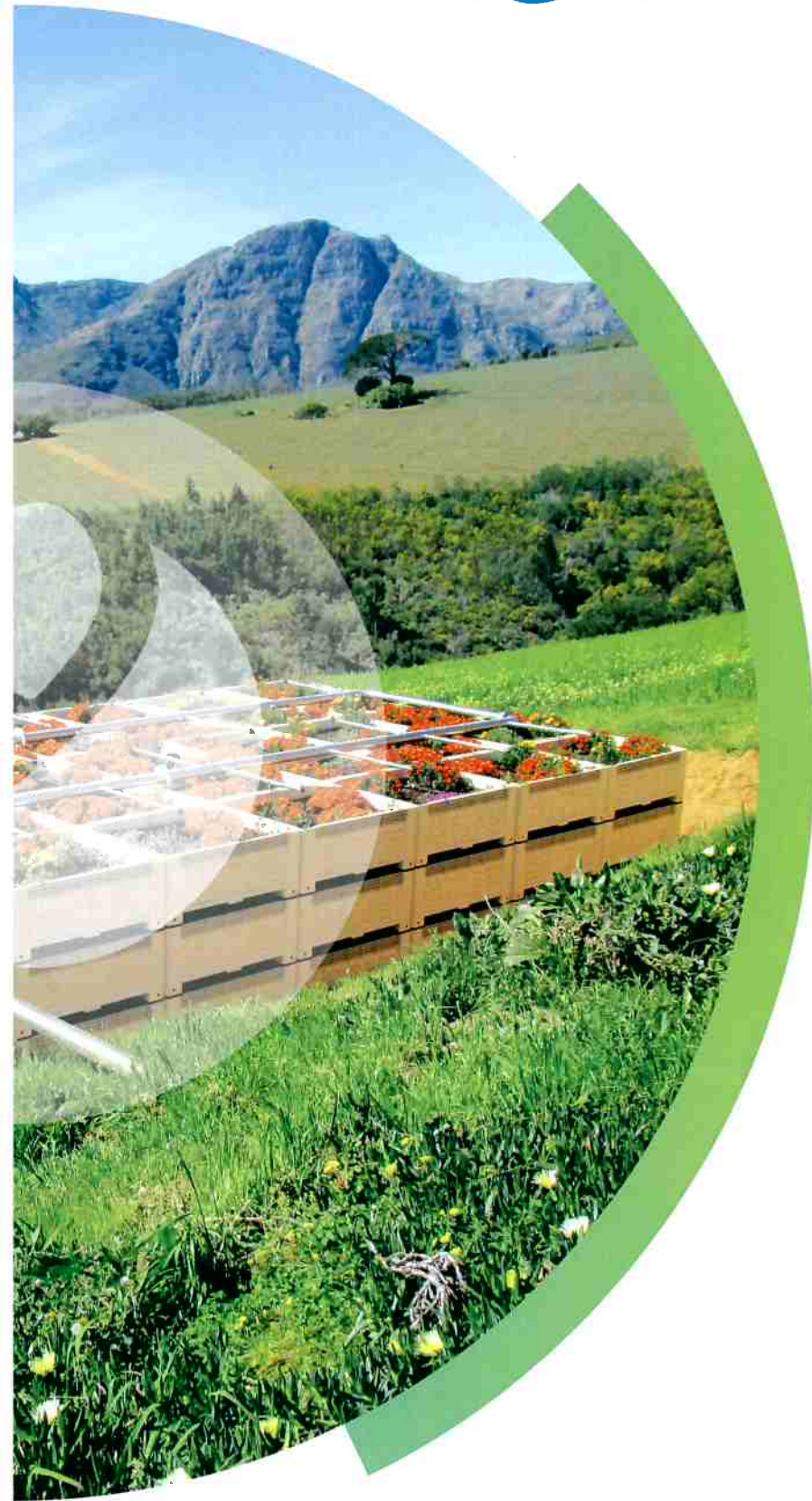




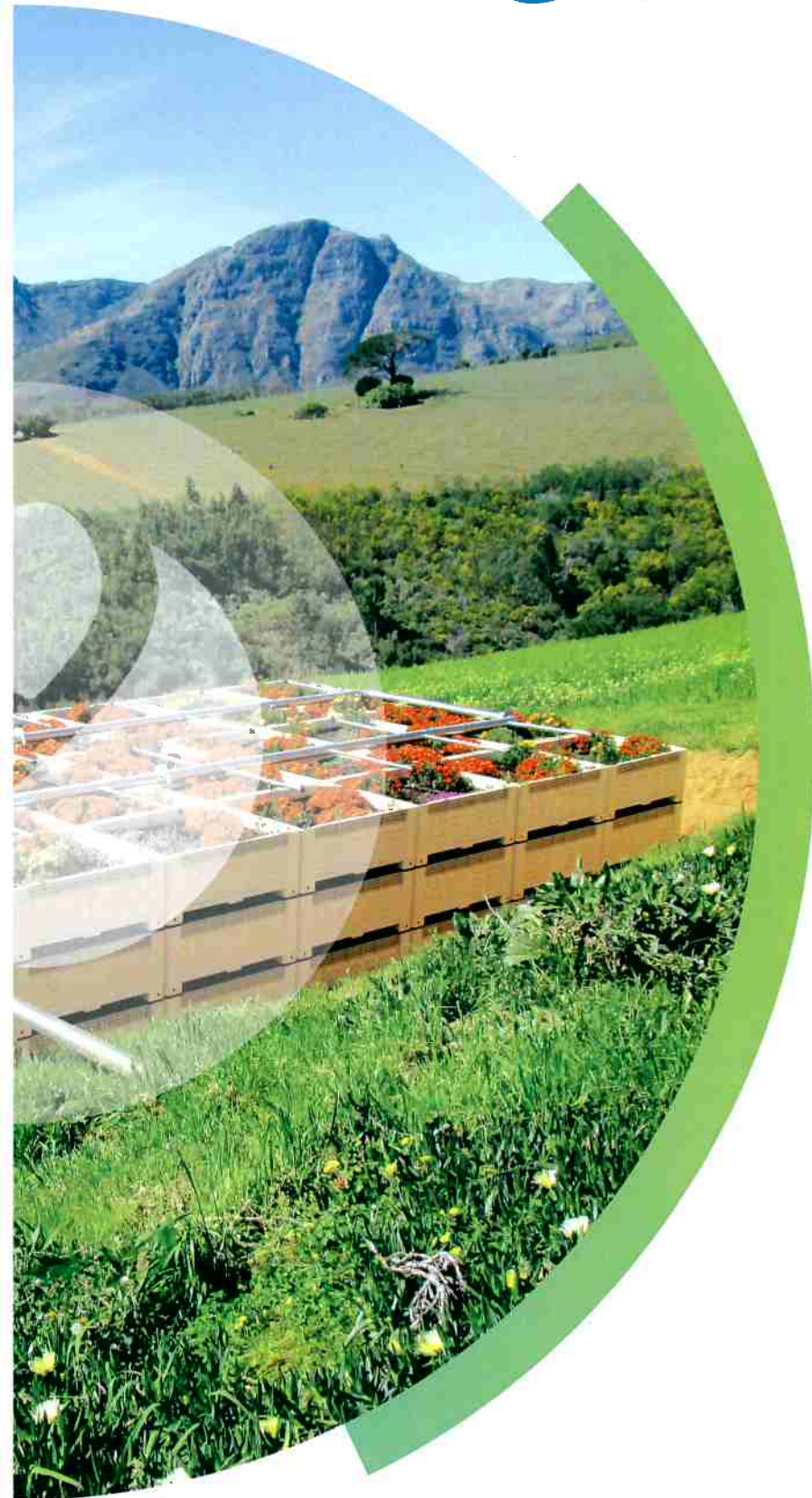
# SOG Trickleing Filter™



*Saving the world,  
one trickle at a time.*



# SOG Trickle Filter™



*Saving the world,  
one trickle at a time.*

# IDEAL FOR EFFLUENT AND SEWAGE TREATMENT

Sewage treatment has never been easier. And not just sewage treatment. **The SOG Tricking Filter™** can also purify biodegradable industrial effluents.

**The SOG Tricking Filter™** is a South African innovation, developed to suit the needs and budgets of any serious environmentalist. Not so long ago, the DWS (Department Water & Sanitation) made a plea to Sanitation Engineers; *"Please make sewage treatment easy"*.

**The SOG Tricking Filter™** is a waste water treatment process that makes sewage treatment easier, especially if you are off-the-grid. Unlike most conventional sewage treatment plants, **The SOG Tricking Filter™** makes use of a multitude of organisms - **THE FIVE KINGDOMS**. By spreading the type of organism activity, a larger range of variable flow and load is possible.

The range in size of treatment organism also facilitates the conversion of sewage to heat and gas as opposed to mere biomass. In the **The SOG Tricking Filter™** there are pockets of aerobic, anoxic and anaerobic zones. Organisms live in the various zones performing selective functions including dissolved organic material degradation (COD reduction), conversion of ammonia to nitrate (nitrification) and removal of nitrate

In conjunction with the presence of various habitats, the **The SOG Tricking Filter™** makes use of media that has absorptive properties. Portions of dissolved organic material are trapped in the media. In times of low or no flow, the trapped material becomes available as a food source (substrate) for organisms that thrive on sewage. If no flow conditions persist, the organisms will consume all available and trapped substrate.

When flow recommences, the media will absorb the substrate and allow the concomitant regrowth of organisms. Sewage treatment using **The SOG Tricking Filter™** is a passive process. Raw sewage is collected in a septic tank / solids separation arrangement. The settled sewage is collected in a pump sump and simply discharged to the top of **The SOG Tricking Filter™**. Sewage works its way through the filter media, which is housed in layers, and is collected at the base of the filter. From this point, the treated water can be directed to a re-use option such as irrigation pump or gravity discharge arrangement.



## 360 SOG FILTRATION SYSTEM BACK TO POTABLE WATER



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# TYPICAL INSTALLATION OF THE SOG TRICKLING FILTER™ INSTALLED POST SOLIDS INTERCEPTOR



## BENEFITS

### Proven Technology

SOG trickling filtration and treatment of sewage has been used for many years in various parts of the world.

### Low Energy

If the site allows, gravity can transfer the water or only one pump is required to transfer water **The SOG Trickling Filter™**.

### Low Visual Impact

**The SOG Trickling Filter™** is tastefully covered with shrubbery. Fencing is an option as is a ventilated

### Low Maintenance

The treatment plant design centres on ease of use and simplicity.

### Upgrade Considerations

A key feature of the design is the provision for upgrade in the event of future growth. **The SOG Trickling Filter™** geometry is chosen to allow for simple increase in size.

### Minimal Solids Handling

Inert solid material in the wastewater is collected in a solids interceptor. This is a robust and hygienic solids material collection device. Actual design is site dependent.

### HWT

The company was founded in 1994 and has successfully designed, built, commissioned and services in excess of 100 treatment plants.

# BIOLOGICAL WASTE WATER TREATMENT

## WASTE WATER DESCRIPTION

Domestic sewage tends to have a variable flow and organic load. The organic content is similar to sugar in coffee, which cannot be filtered out with conventional filtration. Like sugar it is biodegradable and can be easily removed in a carefully designed biological environment.

*The South African National Water Act of 1999 (Currently under review) currently makes distinction between discharge to a water resource and disposal via kikyuu irrigation. For both disposal routes emphasis is placed on sustainable reuse of the water. Irrigation is therefore a primary objective in the treatment of waste water.*

## TREATMENT PROCESS

Waste water is collected at a sump positioned downstream of a solids separation tank. Solids free effluent is pumped to a distribution manifold attached to the top of the SOG trickling filter. The distribution manifold is designed to ensure even hydraulic loading of the **The SOG Trickling Filter™** which comprises multiple stacked SOG layers.

Organic treatment of the solids free waste water takes place in a mixed media biological filter. The size of the SOG filter is determined by the hydraulic and organic loading rate. Waste water percolates through the media and takes approximately 48 hours to flow from top to base.

This type of waste water treatment has been widely used by numerous blue chip clients and local authorities.



Samples. After inert solids interceptor on left and after **The SOG Trickling Filter™** on the right.



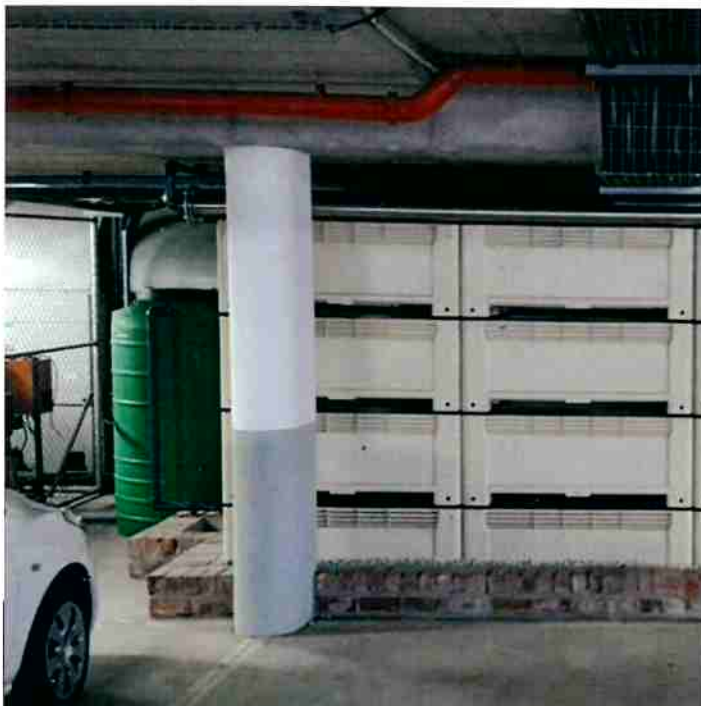
**The SOG Trickling Filter™** - low energy and highly effective. This unit treats up to 1000 litres per day.



**Uva Mira Mountain Vineyards, Stellenbosch**  
Domestic sewage and wine cellar effluent treatment  
Treated water used for irrigation



**Clover Production Facility, Gauteng**  
Treated water used for irrigation

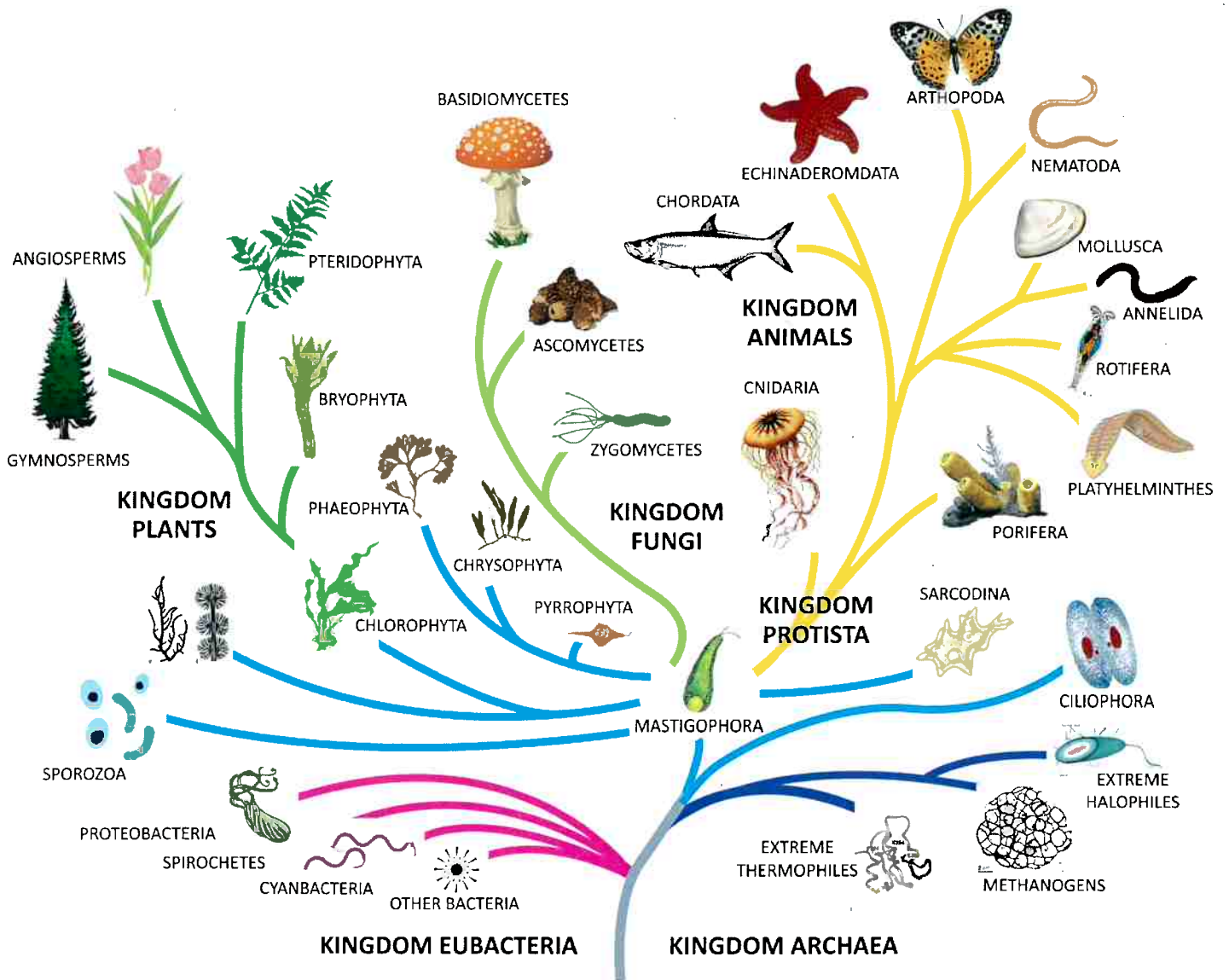


**Old Mutual, The Estuaries, Century City, Cape Town**  
Office block waste water recycled via The SOG Trickling Filter™.  
Additional RO reverse osmosis ensures potable water quality.



**Coffee Shop & Brewery, Contermanskloof**  
Domestic sewage and wine cellar effluent treatment  
Treated water used for irrigation

# THE 5 KINGDOMS APPROACH



THE WHOLE IS GREATER THAN THE SUM OF IT'S PARTS  
ARISTOTLE

In **The SOG Trickling Filter™** there is diversity, spanning 5 of the known kingdoms of life.

**The SOG Trickling Filter™** mimics a mountain seep or bog. It is exposed on the upper layer, shady and moist in the lower layers. The media is never completely water logged and for this reason a range of organisms are attracted to **The SOG Trickling Filter™**.

Biodegradable waste water is trickled over the top layers of **The SOG Trickling Filter™** and percolates through several layers of media. Waste water is the energy that drives life in **The SOG Trickling Filter™**.

A host of organisms interact with one another, their synergy, symbiosis and biodiversity maintaining an energetic and biomass equilibrium.





# SOG Trickling Filter™



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**HWT**  
WATER TREATMENT