ECO SMART
WATER TECHNOLOGIES NAMIBIA CC

Recycle Sanitation Systems

Optimising the re-use and recycling of waste water

RECYCLE SANITATION SYSTEMS

Company Profile

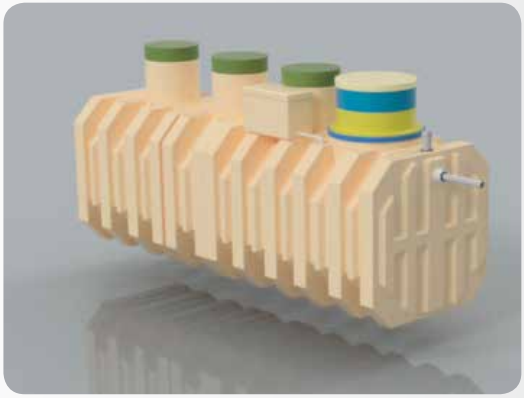
ECO Smart Water Technologies Namibia CC is a Namibian company which has introduced efficient, affordable and innovative waste water treatment and sanitation solutions . Our mission is to offer cost effective yet technology advanced waste water treatment and sanitation solutions to the Namibian people. We are a local manufacturer of high quality waste water treatment and sanitation products.

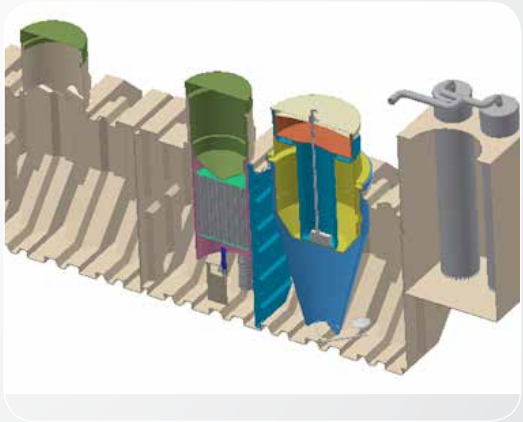
Eco Smart Water Technologies Namibia specializes in providing products both to public and private sectors in the following areas:

- **Aerobic Waste Water Treatment systems**
- **Greywater Filtration and Recycle systems**
- **Recycle Sanitation systems**

ECO Smart Water Technologies Namibia is proud to be involved in the uplifting and improving of educational, military and government facilities which includes the installation of waste water treatment as well as sanitation systems at clinics, schools and community centers. We are also active in providing dignified water borne (flush) sanitation systems to communities in informal areas.

Our manufacturing facilities are located in Brakwater, Windhoek from where all waste water treatment and sanitation projects are undertaken throughout Namibia. We design, manufacture, install, commission and maintain greywater filtration and recycling systems, aerobic waste water treatment systems and recycle sanitation systems to the requirements and specifications of the beneficiaries and can do so for any application in the domestic waste water treatment industry.





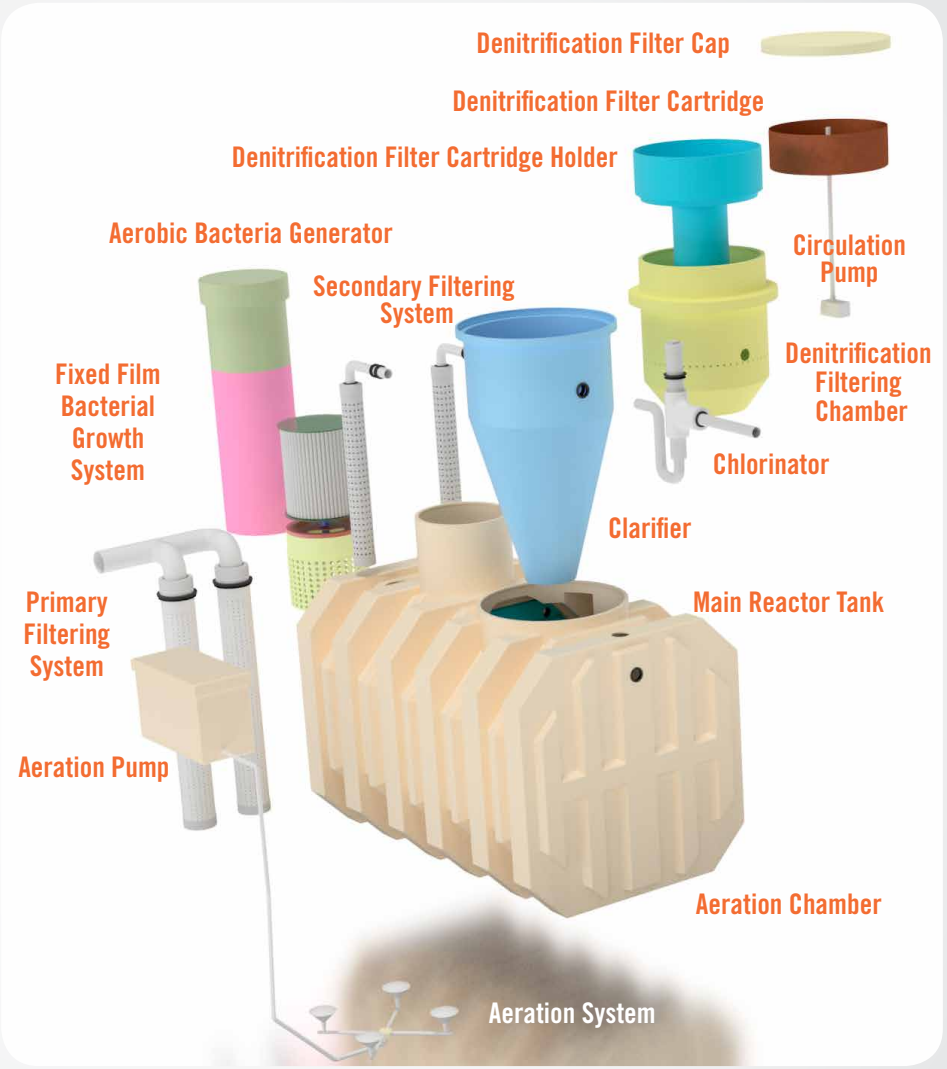
RECYCLE SANITATION SYSTEMS

Main Reactor Tank Components

The ECO Smart aerobic wastewater treatment system is a self-contained wastewater treatment system that utilizes a combination of anaerobic as well as aerobic biological processes combined with a Nano filtration system to treat sewage.

The waste water treatment system is designed to handle a continuous flow of waste water relying on bacteria suspended in the wastewater to break down solids as well as Nano filtration technology to remove other contaminants.

The suspension and aeration are provided by an air pump, which provides air to the bio-filtration process, the aerobic bacteria generator chamber as well as the aeration chamber, providing a constant stirring of the wastewater in addition to the oxygenation.



RECYCLE SANITATION SYSTEMS

Stage 1: Sludge Box

This is the pre-treatment stage where the waste water enters the system. All large solids as well as undesirable substances remain behind in the sludge box, i.e. is separated from the wastewater. This stage acts much like a septic system where all fecal matter is contained and digested by anaerobic microbes added, preventing a solid build-up. The sludge end product formed in the sludge box is a fine soft watery mixture and continues to be consumed by the anaerobic microbes.

The sludge box is also fitted with a sludge filtering system ensuring that only the watery mixture present progress into the filter box for further processing.

Stage 2: Filter Box

The filter box contains the biological filtering system where the bio filtration process takes place. This biological filtering system consist out of 4 x aerated bio-filters which contains a media on which microorganisms attach and grow to form a biological layer called biofilm.

The waste water is applied over the media where the organic matter and other water components diffuse into the biofilm and treatment occurs, mostly by biodegradation.

Stage 3: Aerobic Bacteria Generator

Waste water from the filter box enters the aerobic bacteria generator chamber through the sludge filter where the aerobic bacteria generator, a bio-filtration system that is designed to promote fixed film bacterial growth in order to handle higher than normal levels of biomass in the wastewater, continue to break down and digest waste.

The ABG consist mainly out of a bundle of straight tubes which is used in what is called a “submerged packing process”; the wastewater is circulated through these packings under aeration so that aerobic microorganisms are generated on the surface of the individual packings (tubes) as films where various organic substances that come into contact with the films are decomposed.

RECYCLE SANITATION SYSTEMS

Stage 4: Aeration

Waste water passes to the aeration chamber where oxygen is pumped into the waste water providing a constant stirring of the wastewater in addition to the oxygenation.

Stage 5: Settling

Clear odorless effluent rises into the clarifier chamber from the bottom up. This is the settling out phase of the system as the cone shaped clarifier ensures that any fine solids still present sink down and settle out back into the aeration chamber where it get dispersed with the uniquely cone shape bottom floor.

The clarifier also act as the anoxic zone where some de-nitrification take place, as there is no aeration taking place in the clarifier.

Stage 6: De-nitrification

The de-nitrification filtering chamber is fitted with a Nano filter (De-nitrification Filter) as well as a water circulation pump. Water passes from the clarifier into the de-nitrification filtering chamber, where the water is continuously recycled through the Nano filter by the water circulation pump, enhancing the water quality by removing phosphates, nitrates, heavy metals and other dissolved contaminants.

All tests within Water Quality Standards for Effluent as prescribed by
DEPARTMENT OF WATER AFFAIRS & FORESTRY

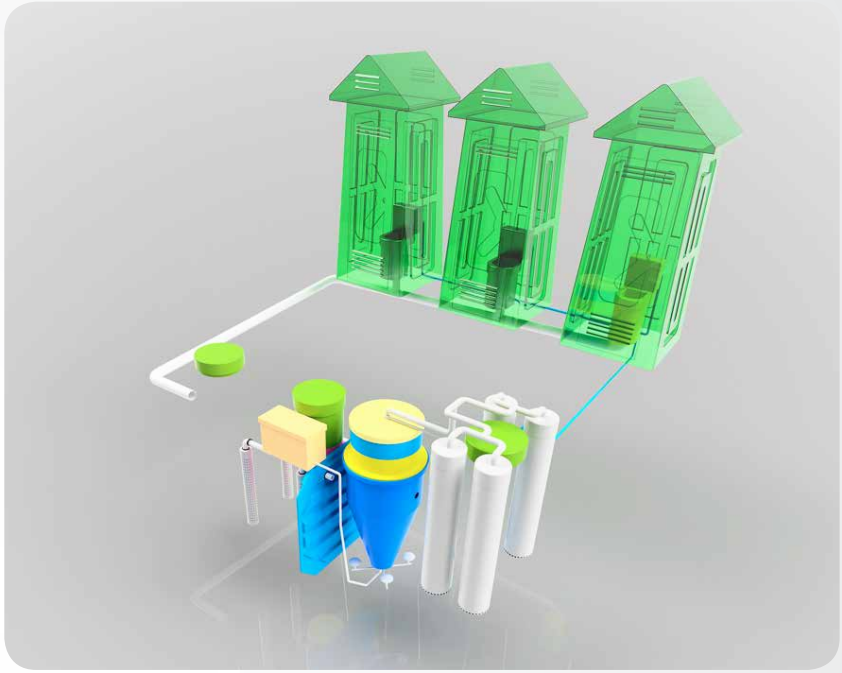
The pressure on Namibia`s existing fresh water supplies can, to a great extend, be eased by the sensible re-use of effluents for a variety of purposes. Therefore, re-use of effluent after suitable treatment is encouraged.

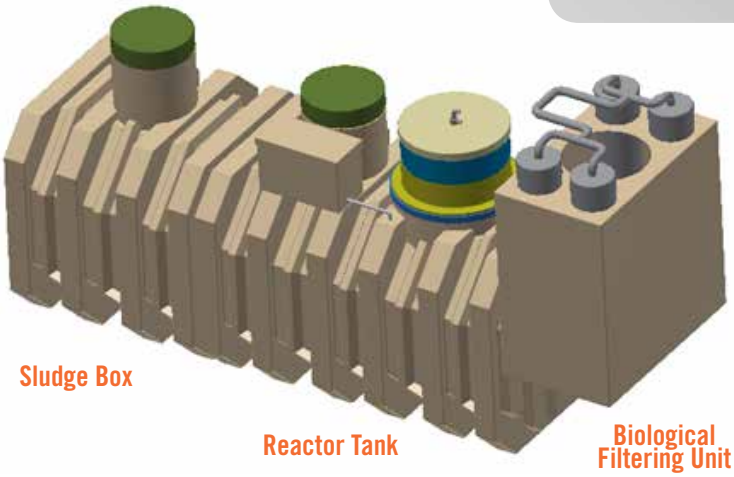
RECYCLE SANITATION SYSTEMS

The Recycle Sanitation Unit consist of:

- 1600 litre Sludge Box
- 2500 litre Reactor Tank
- 1000 litre Biological Filtering Unit

Sufficient to provide facilities for 3 x families of 6 x members each i.e. 18 people

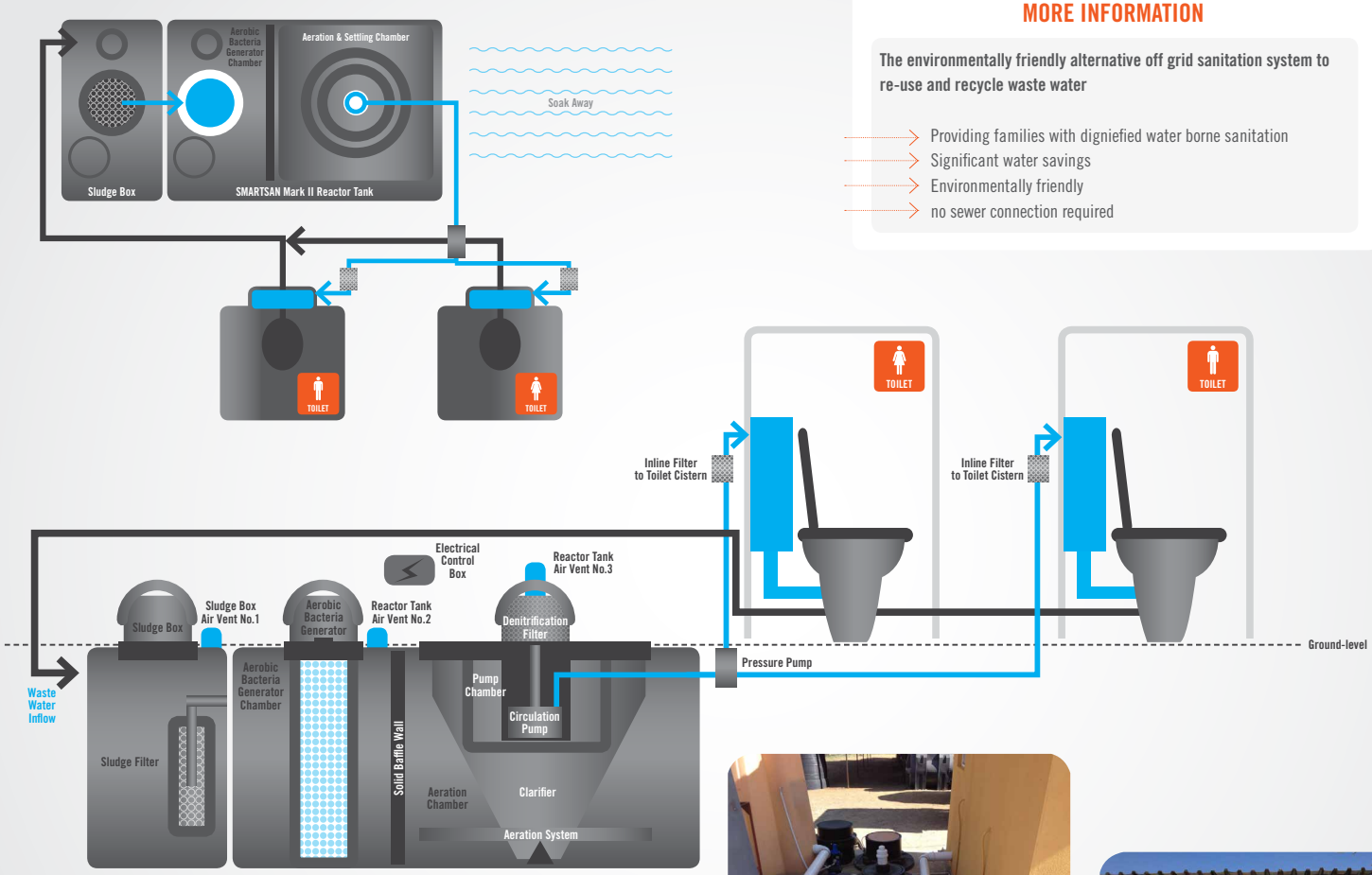




Options for Power Supply

- 220 V Grid supply system
- 12 V PV (Solar) supply option

RECYCLE SANITATION SYSTEMS



MORE INFORMATION

The environmentally friendly alternative off grid sanitation system to re-use and recycle waste water

- Providing families with dignified water borne sanitation
- Significant water savings
- Environmentally friendly
- no sewer connection required

Green Sanitation system:

In areas where there is no electricity available we install a world class solar system 220/12 V solar powerd.

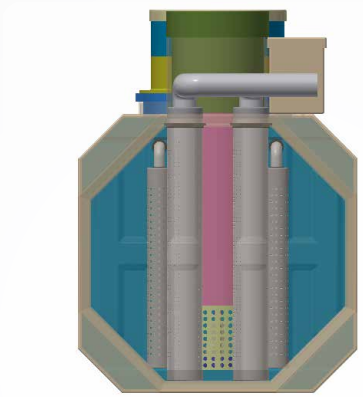
World class solar system 220/12 V

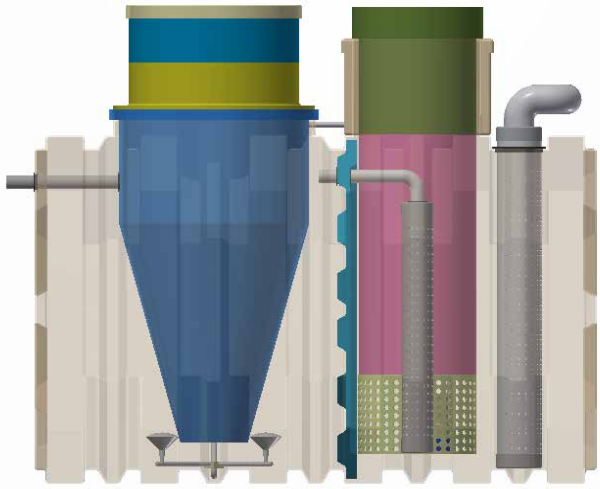
Electricity system where electricity is available

RECYCLE SANITATION SYSTEMS

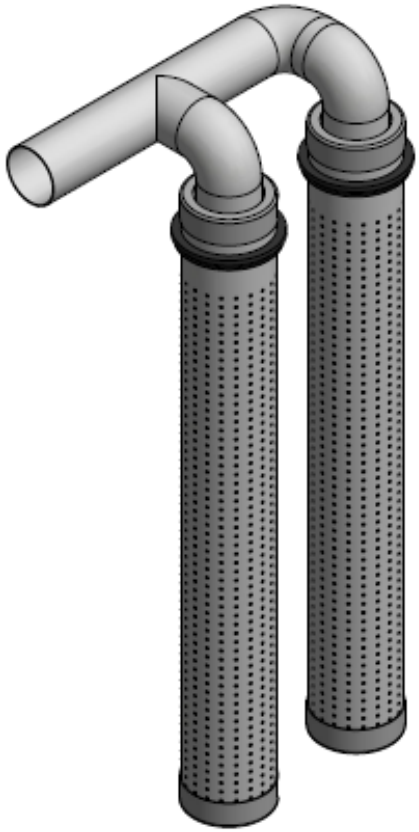
PROUDLY NAMIBIAN

Efficient

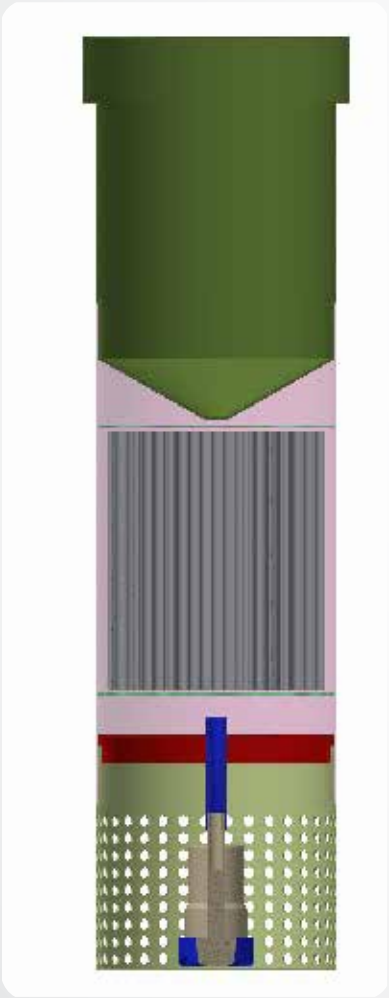


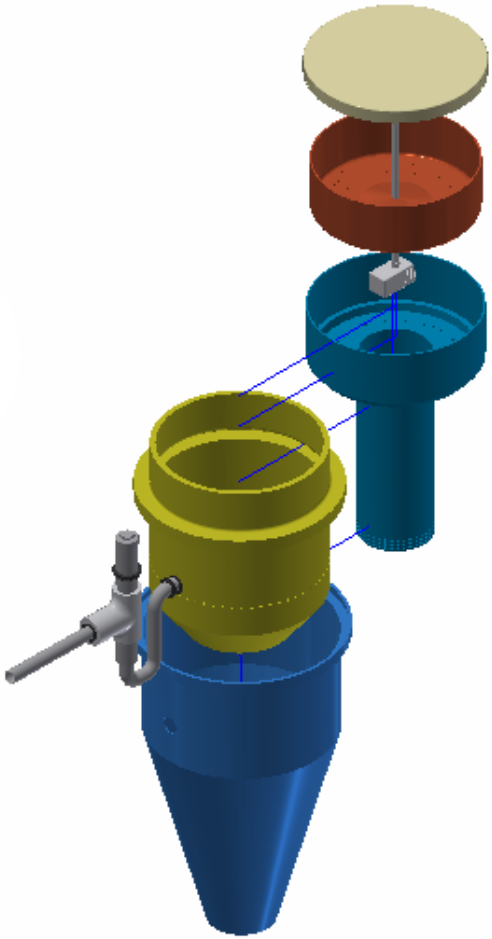


Affordable



Innovative Technology





RECYCLE SANITATION SYSTEMS

Installation servicing Family of 8, 2 Teachers and 38 learners

Kattys pre-primary kinder garden

Omuvapu Street

Okahanjapark

Windhoek

Namibia

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