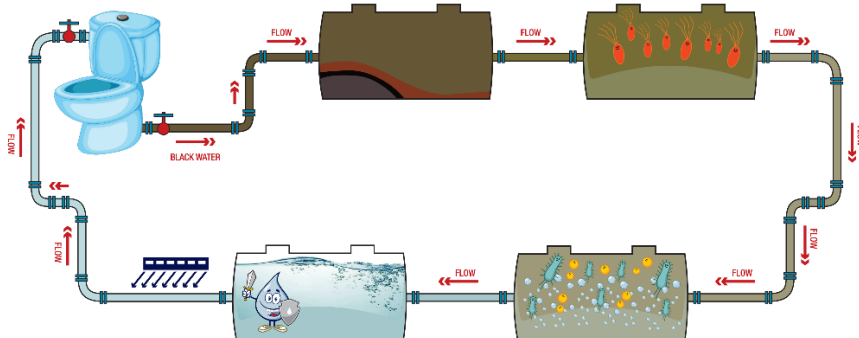
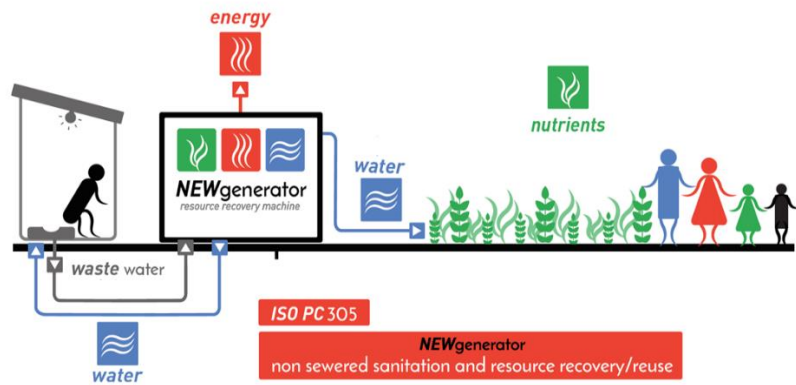


1st Tour Programme – CLOSED LOOPED OFFGRID/NON- SEWERED SANITATION SYSTEM SERVING A SCHOOL AND FACTORY	
Times	Activity/Session
08:30 – 9:30	Travel from Emperors' Palace to Krugersdorp
9:30 – 10:30	Arrive in Krugersdorp <ul style="list-style-type: none"> - Visit Enviroloo Manufacturing plant
10:30 – 11:30	- Visit Tsholetsega Primary School
11:30 – 13:00	Visit to The Cradle of Humankind World Heritage Site This is the location of our collective umbilical cord. Hominids, the ancestors of modern humans, first appeared in Africa some seven million years ago. South Africa discovered fossils of some of the Earth's earliest known life forms. South Africa produced some of the earliest known dinosaur fossils, dating back at least 200 million years. The country has also discovered fossils of our distant mammal-like ancestors that lived more than 200 million years ago.
13:30 – 15:00	Lunch (Venue to be confirmed)
15:30	Travel back to Emperors Palace
Demo Site Information	
Technology Name	Clear Enviroloo Recirculating Toilet (TT5 and TT6)
Innovator/Manufacturer/CP	Enviro Options Pty Ltd
Settlement Type	Tsholetsega Primary School
Population	1301 learners
Location	Tsholetsega Primary School Click here for location
Brief description of Technology	<p>The waste stream from the toilet is initially stored in a black water collection tank. The tank provides residence time for the wastewater to equalize. The tank inventory is then pumped to the treatment section of the system where it is first treated to remove suspended solids and then it undergoes anoxic and aerobic biological treatment to remove organic and nitrogen respectively. A special aerobic media is placed in the aerobic reactor and proprietary bacteria, specifically developed for treating wastewater is attached on the media as a biofilm. This biofilm can effectively biodegrade the organic pollutants and reduce its concentration. The treated stream is then passed through the membrane biological reactor (MBR). The MBR membranes serve as microbial barriers that can capture most of the biomass for recirculation inside the bioreactor. The MBR has very good solids/liquid separation effects and produces water that can either be reused for toilet flushing or discharged into downstream sewer directly or be reused as irrigation water. The water is dozed with ozone to further treat it and ensure it is pathogen free.</p> <p>Schematic Flow</p>

2nd Tour Programme - CLOSED LOOPED OFFGRID/NON- SEWERED SANITATION SYSTEM SERVING INFORMAL SETTLEMENT S	
Times	Activity/Session
08:30 – 9:30	Travel from Emperors' Palace to Mofolo North Soweto
9:30 – 10:30	Arrive in Mofolo North Soweto - View TT5 clear enviroloo system
10:30 – 11:00	Travel from Mofolo North to Slovoville
11:00 – 12:30	Arrive in Slovoville Soweto - View Newgenerator system
12:30 – 13:00	Travel to Vilakazi street for Lunch
13:30 - 14:00	Lunch (1947 Vilakazi street)
14:00 – 15:00	Vilakazi street Vilakazi Street is where Nelson Mandela spent the first couple of nights upon his release after 27 years of imprisonment, with his former wife, Winnie Mandela. Number 8115 Orlando West was also where he lived between 1946 and 1962. Two Nobel Prize winners both lived in vilakazi street, Nelson Mandela, and Archbishop Emeritus Desmond Tutu.
15:00 – 15:30	Travel back to Emperors Palace
Demo Site Information	
Technology Name	Clear Enviroloo Recirculating Toilet (TT5)
Innovator/Manufacturer/CP	Enviro Options Pty Ltd
Settlement Type	Informal settlement
Population	75 households
Location	Mofolo North Soweto Click here for location
Brief description of Technology	<p>ENVIROCLEAR</p> <p>The waste stream from the toilet is initially stored in a black water collection tank. The tank provides residence time for the wastewater to equalize. The tank inventory is then pumped to the treatment section of the system where it is first treated to remove suspended solids and then it undergoes anoxic and aerobic biological treatment to remove organic and nitrogen respectively. A special aerobic media is placed in the aerobic reactor and proprietary bacteria, specifically develop</p>  <p>ed for treating wastewater is attached on the media as a biofilm. This biofilm can effectively biodegrade the organic pollutants and reduce its concentration. The treated stream is then passed through the membrane biological reactor (MBR). The MBR membranes serve as microbial barriers that can capture most of the biomass for recirculation inside the bioreactor. The MBR has very good solids/liquid separation effects and produces water that can either be reused for toilet flushing or discharged into downstream sewer directly or be reused as irrigation water. The water is dozed with ozone to further treat it and ensure it is pathogen free.</p> <p>Schematic Flow</p> <p>The NEWgenerator™</p> <p>is a modular off-grid sewage treatment system that has been developed by the University of South Florida (USF). It treats sewage using an anaerobic membrane bioreactor, nutrient capture system, and electro-chlorination to produce treated water, biogas, and liquid fertilizer. Treated water can be recycled for toilet flushing to reduce the external water demands. It is</p>

supplied with a solar system to provide all power required for the off grid running of the system. The NEWgenerator system can be easily implemented in communities or institutions that do not have adequate access to sanitation.

Schematic Flow



3rd Tour Programme – CLOSED LOOPED OFFGRID/NON- SEWERED SANITATION SYSTEM - RTMC Training Academy Pretoria West

Times	Activity/Session
08:30 – 9:30	Travel from Emperors' Palace to Boekenhoutkloof Pretoria West
9:30	Arrive at RTMC Training Academy Boekenhout Campus
9.30 TO 11.00	- Introduction to Initiative
	<ul style="list-style-type: none"> • Introduction to LWI • Overview of the RTMC project • Technical aspect of the Project • Feedback from RTMC
11:00 – 11:30	Tea and refreshment
11:30 – 12.30	Site tour of the technical setting and sanitation technology centre.
12.30 – 13.30	Light lunch
13.30 – 14.00	Travel to Union Building and Mandela Statue
14.00 – 15.00	Union Buildings
15.00 – 16.00	Return to Emperors
Demo Site Information	
Technology Name	RTMC Training College, Pretoria West
Innovator/Manufacturer/CP	<p>LWI – Leadership in water Innovation South Africa</p> <p>LWI (Pty) Ltd is a South African company with international expertise in providing quality water management products and services to clients across all sectors. LWI is well established in the wastewater sector throughout Sub-Saharan Africa and especially in the SADC region.</p> <p>LWI consists of a core team of process engineers, civil engineers and microbiologists supported by a team of project planners and distributors. These personnel have more than 50 years of experience in the field of wastewater treatment technology and have successfully designed, constructed, and installed various treatment systems in over 15 African countries.</p>
Settlement Type	RTMC Training College
Population	2500 people
Location	<p>Pretoria West</p> <p>https://www.google.com/maps/place/Boekenhoutkloof+Traffic+College/@-25.7126739,28.0782545,15z/data=!4m6!3m5!1s0x1ebfd707d8d9efad:0xb913e3d387edc96a!8m2!3d-25.7126739!4d28.0782545!16s%2Fg%2F1tplslqk?entry=ttu</p>
Brief description of Technology/Project	<p>The design is based on WRC REPORT NO TT 389/09 which provide guidelines in respect to daily flow calculations, capacity and retention. The system is designed to treat to the General Standard with a peak capacity of 200m³ per day at full operational capacity. The system treats all effluent and this is reused for toilet flushing.</p> <p>LWI investigated various treatment technologies and the process selected an Integrated Fixed film Activated Sludge (IFAS) process as the best suited technology to satisfy all the legislative, site specific and client requirements. Also the input is wastewater streams and not pure blackwater.</p>

	Submersible Pump		Pressure Sensor		Float Valve
	Root Blower		Bacteria Tank		Non-Return Valve
	Micro Bubble Diffuser		Dosing Pump		Timer
	Flow Meter		Pul Rings		Centrifugal Pump
	Ball Valve		Screen		Sludge Bags

Typical Aboveground Steel Tank PFD

