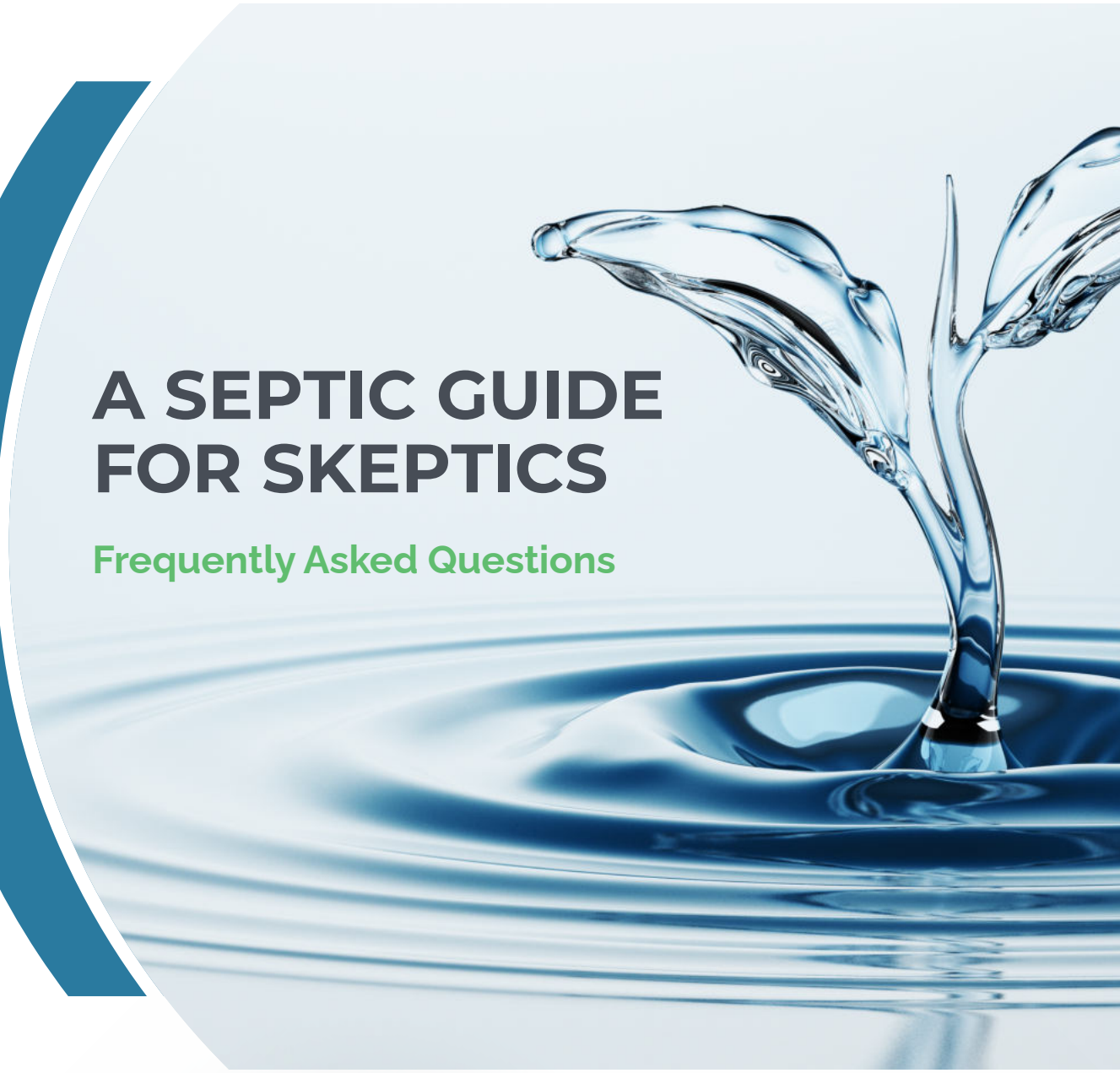


A SEPTIC GUIDE FOR SKEPTICS

Frequently Asked Questions

Water forever
a greener world

More than 250 000 wastewater treatment facilities worldwide

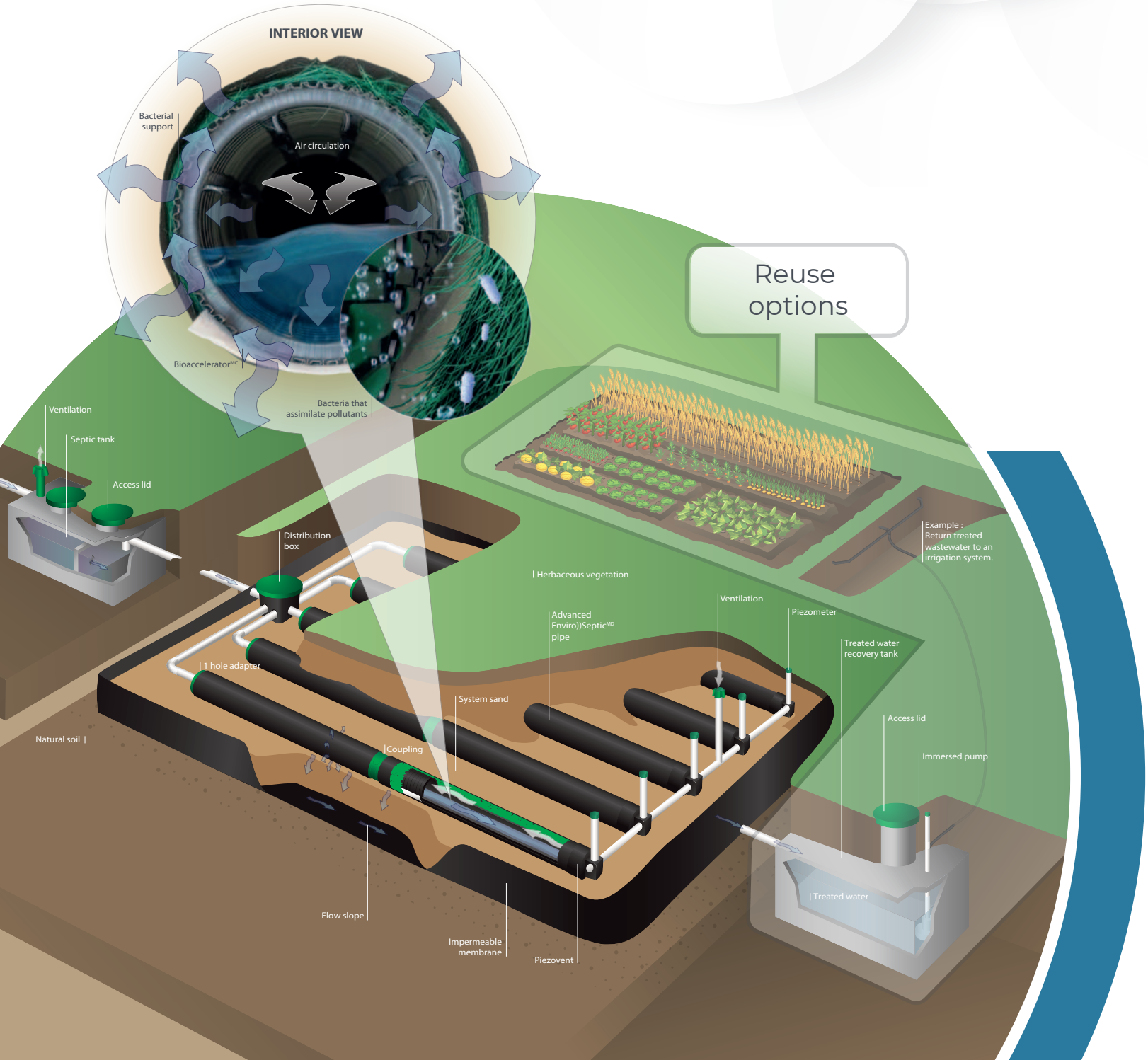
System O

DBO INTERNATIONAL

What is **SYSTEM O))?**

Solutions for **treatment** and **reuse** of **wastewater**.

For **unserviced residential** or **commercial**, **community** and **institutional** projects.



Regardless of your enviroment, we have the most ecologically, cost-effective, and long-lasting solution for any geography and climate situation. Each System O)) solution is optimized by a passive secondary treatment technology.

What are the advantages of this technology?

- 100% organic and autonomous
- No electricity required
- No mechanics
- No continuous maintenance
- No odor
- No noise
- No chemical additives
- No waste discharge (sludge)
- No filter media replacement

What are the various solutions for tertiary treatment?

- Passive disinfection
- Disinfection by UV ou chlorinator
- Dephosphatation by ionization, polymerization, coagulation or passive
- Denitrification

Is it possible to reuse wasterwater?

Yes, imagine an autonomous and passive sanitation system offering purification performances that exceed established standards, allowing the recovery of treated water for appropriate reuse.

Maximize the reuse of treated water to supply a garden or a green space.

Several other reuse options :

- Irrigation
- Toilet flushing
- Roadways
- Car wash
- Extinguishing device
- Sports (snow gun, golf)
- Industrial use
- Groundwater recharge

Where can we install System O))?

- Residential developments
- Base camps
- Accommodations (hotel, motel)
- Roadside stops
- Mines
- Villages
- Seasonal applications
- Agrifoods industries

System O)) is safe for the environment and adapts to all situations. It can be installed near a school or under a parking lot, a playground or a garden without any health risk while respecting the landscape aesthetics.

COMPARISON
of treatment systems

Calculate and compare

Example for a drained secondary treatment

	System	Competitors and other systems	
		Microstation (aeration, pump, mechanical)	System with changeable filter media
Energy costs Consumption of KWH/year for the whole system	**N/A** **Without electricity** Totally passive technology		
Remplacement of filter media · Cost of the media according to the frequency of remplacement · Surplus fees according to the distance to be covered · Costs of disposal of contaminated material	**N/A** **Permanent filter media** No pipe clogging **Details on page 5**		
Maintenance of mechanical parts · List of parts to be changed and price of each, life span of each part · Technician hourly rate	**N/A** **No mechanics** No repair of failed or obsolete mechanical parts		
Annual maintenance costs	**N/A** **No continuous maintenance** No maintenance is required, just follow the user guide : dbointernational.com/userguide.pdf		
Average life span (number of years)	**+ OVER 35 YEARS** The technology exists since 1987 and systems installed that same year are still as efficient and environmentally friendly! **Details on page 7**		
Guarantees (number of years) Components, filtering sand, performance, etc...	**20 YEARS** Caution : what is important to understand about component warranties, filtering sand and performance. **Details on page 8**		
Reuse Recovering treated water for conservation of drinking water	**YES** Many reuse options : irrigation, toilets, roadways, car wash, industrial use, etc... **Details on page 9**		

THE DISTINCTIONS of System O))

No remplacement of **filtering media**

Most environmentally friendly wastewater treatment technologies use a biological treatment process, which is a place where bacteria can establish themselves, feed on pollutants in the water and reproduce. The bacteria metabolize the pollutants to create sludge in an anaerobic mode. For some technologies, these bacterial growth areas, called filtering media, require additional maintenanceand costs to replace.

System O)) solutions based on Advanced Enviro))Septic technology that are designed, installed and used according to the guidelines are sustainable. The fine green particles around the pipes that allow bacterial growth are permanent. The system does not require any remplacement of filtering media or components and no cleaning is required.

The technology as been around since 1987. We see Systems that were installed more than 35 years ago are seen in perfect condition and treating wastewater with the same efficiency today as it did in the beginning.

Why?

Two phenomena are at the origin of this long life expectancy : **the controlled growth of a bacterial mat ("biomat") due to aeration andtreatment of water before its infiltration and a natural management of sludge inside the pipes.**

The curious scientists among you can find a document "infoDBO" explaining these biological mechanisms on our website via this link: dbointernational.com/sludge.pdf

In summary

We find through the technology **aerobic and anaerobic environments**, that is, in the presence or absence of oxygen: wastewater enters the Advanced Enviro))Septic pipes in waves according to the use of water in the house. The water is gradually drained by infiltration, controlled by the pipes and the filtered sand surrounding them. These fluctuations force the bacteria in the pipes to alternate between different living environments. These continuous changes ensure that there is no sludge build-up in the pipes.

Another advantage of a System O)) solution is that it is a completely open ecosystem to nature. A multitude of indigenous organisms, such as insects, but also some roots, access the Advanced Enviro))Septic pipes. These therefore participate significantly in the reduction of biomass and the removal of sludge and minerals contained within the pipes.

> **Look into the costs of replacing the filtering media. How long does it last?**
>
> With other solutions you may probably find the unpleasant surprise of paying for the replacement of peat moss, coco coir, or another substrate after only a few years.

Performance : certifications et accreditations

Some results obtained during the test benches of the various certification bodies :

	Results (mg/l)				Norms (mg/l)				
	Stoke (18 months in Quebec)	BNQ Quebec (15 months)	CEBEDEAU (European Union over 15 months)	Dubaï (As of 2022) Wimpey Lab.	USA (NSF-40)	Canada (BNQ 3680-910)	European Union (NE-12566-3)	Dubaï UNRESTRICTED irrigation max.	Dubaï RESTRICTED irrigation max.
TSS (Total Suspended Solids)	3,7	< 1	10,1	< 5	< 25	≤ 15	< 35	15	30
BOD_5 (Biochemical Oxygen Demand)	3,9	< 2	12,2	< 5	< 30	< 15	< 30	5	20
COD (Chemical Oxygen Demand)	17,9	N/A	62,2	40	N/A	N/A	N/A	150	200

CANADA

CAN / BNQ 3680-600 for residential wastewater treatment and disinfection

CAN / NQ 3680-910 advances secondary treatment and disinfection in Quebec for small (0,5m3/day) and large projects (over 2 000 m3/day)

www.bnq.qc.ca

FRANCE

- **Ministerial approvals, issued by the Minister of State, the Minister of Ecological Transition and Solidarity, and the Minister of Solidarity and Health:** (No. 2019-008, No. 2019-009) for drained and non-drained facilities.
- **Technical notice issued by the CSTB** (Centre Scientifique et Technique du Bâtiment) : (n° 17.1/ 18-333_ V3))

https://dboexpert-france.fr/certifications-pro/

UNITED STATES

National Sanitation Foundation (NSF) 40 Class I Standards, Certificat #3U460-01 (09/ 22/ 09)

www.nsf.org

EUROPE

CE Marking
Conforms to NE 12566-A3

BELGIUM AND LUXEMBOURG

- **Belgium Flanders Benor :** Batch system 0 to 50 EH : CRT/ 017-KW
- **Belgium Walloon region SPW :** (5 à 20 EH : N°2017/12/206/A 21 à 50 EH : N°2017/12/207/A)

The System O)) solutions are approved and also have authorizations from Spain, Algeria, Morocco, Senegal, the city of Dubai, for mines in Peru and several others are in progress.

System O)) was recently awarded the famous Solar Impulse label in January 2024. A certification given to the greenest and most sustainable solutions around the world.

Have a clear conscience, we have proven ourselves!

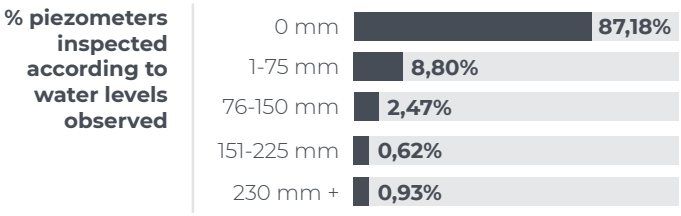
Treatment results exceed established norms and standards.

Average **life span**

In Quebec (Canada), after more than 339,254 piezometer inspections conducted during the year 2000 to 2021, the technology behind the System O)) is the best approach in terms of sustainability and purification performance on the market.

What is a piezometer? A piezometer is a tool within the septic system that allows you to evaluate the water level in each row of pipes.

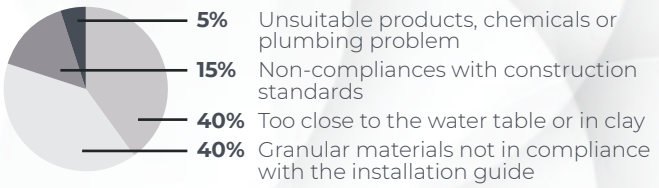
You will be able to see in this graph that 99.07% of the water levels in the piezometers of all our facilities inspected in 2021 were in normal conditions. A normal situation is indicated when the water level in the pipes, measured through the piezometer at the end of each row of pipes, is between 0 and 230 mm.



You read that right, more than **99.07% of the piezometers inspected in 2021 illustrate a perfectly normal water level.**

These results significantly indicate that the owners of these facilities had no out-of-pocket costs for part repairs or filtering media replacements.

In the unusual cases of high levels, wich represents **less than 1% occurrence, here are the causes observed:**



System O)) Solutions that are designed, installed and used in accordance with the guidelines are sustainable!

For abnormal cases, DBO accompanied the customer in solving the problem without additional fees.

Quoting prices? Ask whether your instalation will last for a few years without paying more.

Advanced Enviro))Septic technology has been around since 1987 and systems installed in that same year are still going strong and environmentally friendly.

Garantee or transparency?

What is important to understand about guarantees of components, filtering sand and performance.

Technology guarantee

Advanced Enviro))Septic pipes are **guaranteed for 20 years** by the manufacturer. Being the simplest system on the market, there are no other components necessary for the proper functioning of the biological process besides the filtering sand.

Filtering sand guarantee

The filtered sand wraps the Advanced Enviro))Septic pipes and completes proper water treatment so that they can then safely integrate nature. **Only a laboratory-issued grain size can guarantee the quality of the filtering sand.** We already require this grain size from the installer for every System O)) installation.

Performance guarantee

The technology has gone through lengthy benchmarking processes in order to certify the treatment quality. Treatment results exceed established norms and standards, and if you follow the recommendations in the user guide, the system will always perform well.

Details on page 6

Clogging/sealing guarantee

While all water treatment systems produce sludge, only System O)) will reintroduce them harmoniously into nature's cycles. **Details on page 5**

In summary

Because of the simplicity and lack of mechanical parts or filtering media replacement of System O)) with Advanced Enviro))Septic technology, there is no maintenance for a secondary treatment system.

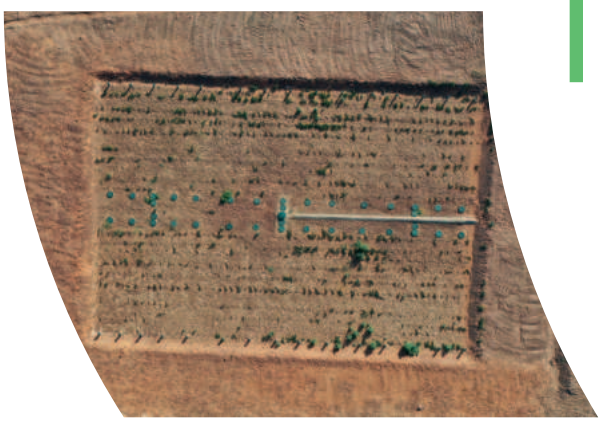
> **Ask what real warranty you get. Will you have to pay to repair mechanical parts or change the filtering media?**
>
> You can already benefit from a **20-year warranty.** Have a System O)) solution installed by a certified installer and forget it!

Reuse of wastewater

Yes, imagine an autonomous and passive sanitation system offering purification performances that exceed the established standards, allowing the recovery of treated water for an appropriate reuse.

Conserve drinking water by maximizing reused treated water to irrigate a garden or green space.

As for example, this crop of sunflowers irrigated with water treated by System O)). Lima, **Peru**



Or to make a significant saving in drinking water by reusing treated water for a car wash and restrooms at a rest stop. Yellel, **Algeria**

Several options of reuse

- Irrigation
- Toilet flushing
- Roadways
- Car wash
- Green space
- Extinguishing device
- Sports (snow gun, golf)
- Industrial use
- Groundwater recharge

OTHER QUESTIONS
frequently asked

Does the system generate noise?

No, there is no mechanical system, the ventilation is done naturally and does not generate any noise.

Are there any odours?

A chimney effect, between the roof vent and the system's ventilation, draws out odours, mainly from the septic tank. If there are odours, they could be coming from a clogged roof vent (e.g. from snow and ice), or from winds that could push the roof vent downward. These situations would occur regardless of the type of septic system used. Solutions are already in place to face such situation.

Is the system expandable?

Yes, it is possible to add pipes to the system in accordance with the growing needs of a growing household, community, institution or business.

DBOINTERNATIONAL.COM

DBO International works to improve the quality of life for everyone by following natural and ecological principles for the respect and well-being of the planet. Our mission is to create and apply innovative, environmentally friendly wastewater treatment and reuse solutions for all situations around the world.