GREY WATER

REDUCE
REUSE
RETHINK
WATER

www.regenwater.be

GEP

LET'S RETHINK WATER TOGETHER

In a world where water is scarce, it seems unthinkable that we flush our toilets with clean tap water. Especially because there is a different way: **grey water is perfectly recyclable** and allows you to **save as much as 50 litres of drinking water every day** through reuse.

#RETHINKINGWATER

Kuborn by general contractor Willemen NV

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GEP GREY WATER BROCHURE 2021

WATER CONSUMPTION* IN BELGIUM: FACTS & FIGURES

* on average per person per day

rain water

ground water

114 L

Water consumption
per person per day

tap water

100 L

= 88%

of the total water consumption is tap water

Water consumption per application

bath	shower	toilet and urinal	washing machine
5.1 L	23.8 L	21.3 L	15.5 L

sink	plants and garden	cleaning	other
9.4 L	7.4 L	5.8 L	22 L

01 WHAT IS GREY WATER?

We all unwittingly produce a lot of grey water. We **flush this household waste water** away via our showers, sinks, washing machines and dishwashers, among other things. 'Grey water' refers to the **grey colour caused by soap residues contaminating the water**. Considering that more than half of our household water consumption is for personal hygiene, there is a lot to be gained from reusing grey water.

Recycled grey to save the day!
GEP specialises in systems that filter grey water to give it a new purpose. Just like rain water, you can use treated grey water for your toilet or washing machine, to water your garden or clean your terrace. Grey water has the advantage of not being dependent on how much precipitation there is, so with a grey-water system you enjoy a relatively constant supply. What's more, recycling grey water allows you to save up to 50 litres of drinking water per person per day. In a nutshell, reliable and good for the environment.

How much water can you save with a grey-water system?

50 L

Drinking water
With a GEP grey-water system you can save about 50 litres of drinking water per person per day.

38.3 L

Waste water
In addition, you can save 38.3 litres of waste water per person per day.

02

REUSING GREY WATER IS PREVENTING A BLUE-OUT

Do you ever reflect on the value of water? It is an **indispensable resource, for us and for our planet**. And it is slowly running out. Today, 36 countries are already struggling with a blue-out or extreme water shortages. It is even predicted that by 2025 half of the world's population will be living in areas with permanent water shortages. Time for action!

Use water twice
In order to stop the unnecessary wasting of water, GEP has for years now been focusing on climate-adaptive solutions for its reuse. Every year, families and companies consume millions of cubic metres of water, one third of which to flush the toilet. Why do that with clean water when you can do it just as well with recycled water? With a grey-water system, you avoid tap water literally going down the drain and you recover the water used for your bath or shower that was previously drained away. After all, water is too precious to be used only once, right?

Think of your EPC
The environmentally-friendly advantages of a grey-water system obviously contribute to the energy efficiency of a building. Lowering the EPC value of a newbuild project or improving the energy performance certificate of an existing dwelling are therefore highly recommended. In addition, water efficiency is an important criterion in the awarding of the BREEAM label, which certifies sustainable building projects.

Why reuse grey water?

It's good for the planet
Grey-water recycling prevents the unnecessary waste of precious water.

No more surprises on your water bill
Reusing grey water allows you to lower your costs for drinking and waste water. As a result, a grey-water system pays for itself after a few years.

Alternative to rain water
A grey-water system does not rely on precipitation and is therefore the perfect complement to a rain-water system.

> **Water is too precious to be used only once, right?**

03 WHEN IS A GREY-WATER SYSTEM USEFUL?

By developing customised systems, GEP wants to make **grey-water recycling accessible to everyone** . Both families and companies should be able to save the water drained from their baths, sinks or showers. Depending on the amount of grey water produced, GEP provides different grey-water systems.

The more people, the more grey water
Grey-water systems are generally recommended for high-rise buildings. In buildings where many people live under the same roof and large quantities of water are consumed, a grey-water system is not only a sustainable solution but also a cost-saving one. Examples include hotels, office buildings, collective housing complexes and apartment buildings: here the reuse of grey water is undoubtedly useful.

Combination with a rain-water system
A grey-water system is often confused with a rain-water system, which filters and collects water from the roof. Both options have their advantages. A grey-water system does not depend on the amount of precipitation, while a rain-water system can prevent flooding or water damage by buffering a large amount of water in a short period of time.
Ideally, you should consider a combination of the two systems, where the grey-water tank is topped up with rain water when empty and vice versa. So, when purchasing your grey-water system, you can opt for an extension with a rain-water connection. GEP then supplies an external rain-water tank with a submersible pump.

Grey-water systems are particularly interesting in buildings where many people live under one roof.

Water reuse in high-rise buildings

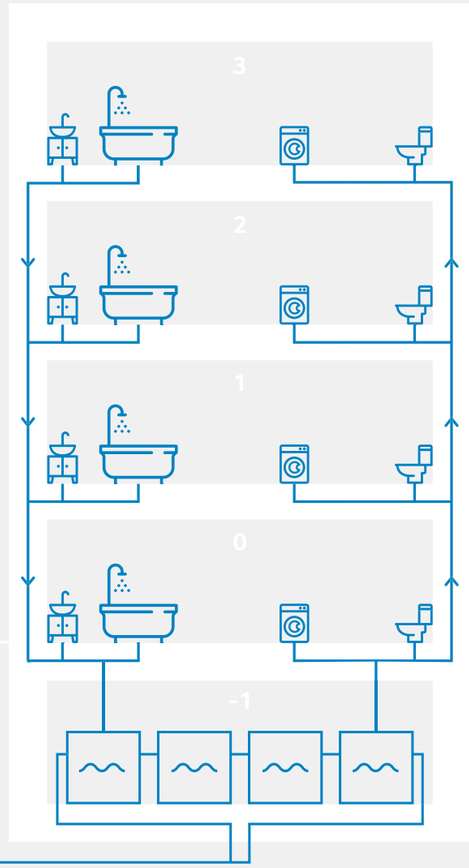
In apartment buildings or hotels, which are characterised by a high need for and consumption of water, a grey-water system offers great added value. The collected waste water is filtered and then enters a separate water supply system.

In order to guarantee the quality and safety of this secondary water supply system, we recommend the following:

OK TO USE

eco-friendly products

plant-based solvents



NOT OK TO USE

products with bleach

chemical solvents

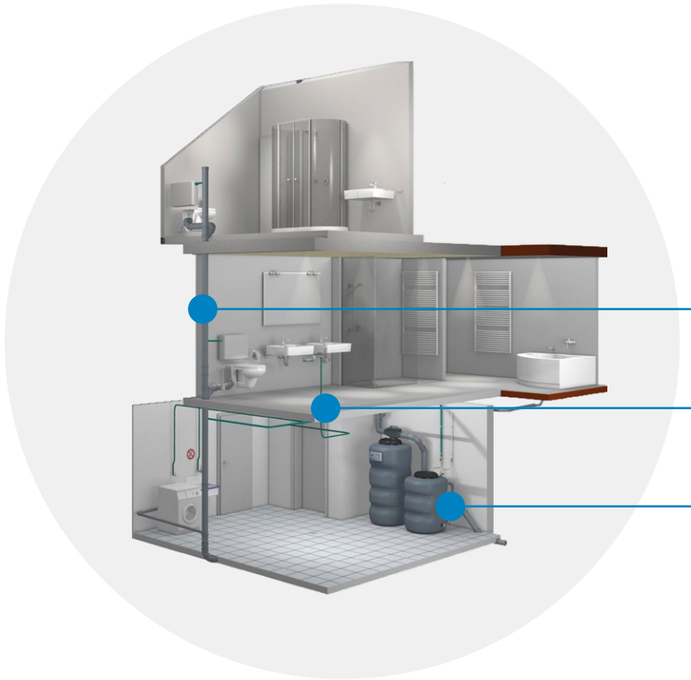
- textile and hair dyes
- paint residue
- concentrated acids and alkalis
- mud baths
- pharmaceutical products
- high-foam water additives
- silicones
- resin
- solvents
- colouring agents
- flocculants
- anti-foaming agents
- waste water with a high fat content

04 HOW DOES A GREY-WATER SYSTEM WORK?

A grey-water system drains waste water from baths, showers and sinks into a storage tank, where the grey water is biologically treated. Computer-controlled aeration ensures that bacteria break down the organic contamination in the water.

The biologically treated water is then pushed through the membrane filter and stored in the fresh water tank. From this tank, the water is pumped into a secondary water pipeline, which can be connected to washing machines, toilets, urinals and service taps. If the fresh water tank is empty, it is topped up from the rain-water tank. If this tank is also empty or if it has not been installed, the system automatically switches to tap water.

The connections to GEP grey-water systems are EN1717-, KIWA- Belgaqua-certified.



05 COMPONENTS OF THE SYSTEM

1. **Mechanical pre-filter**
This Trident grey-water filter ensures an initial, coarse filtering of the grey water. The filter surface is made up of triangular slats that are perpendicular to the flow direction. The slats are angled in such a way that the water flows against the raised sides and is deflected into the tank. All dirt particles larger than the openings between the slats remain on the filter plate.
The filter is equipped with an automatic filter nozzle by default to guarantee a high yield.

2. **Sewage system overflow**
Excess grey water flows into the sewage system via the overflow.

3. **Grey-water storage tank**
This tank stores the coarsely filtered grey water. It contains carbon and bacteria, and is equipped with a permanent aeration system.

4. **Membrane tank**
In the membrane tank, the water is once again cleaned through the GEP membrane filter, guaranteeing an exceptionally high water quality. The tank is equipped with an automatic aeration system.

5. **Clean-water tank**
This is where the treated grey water ends up.

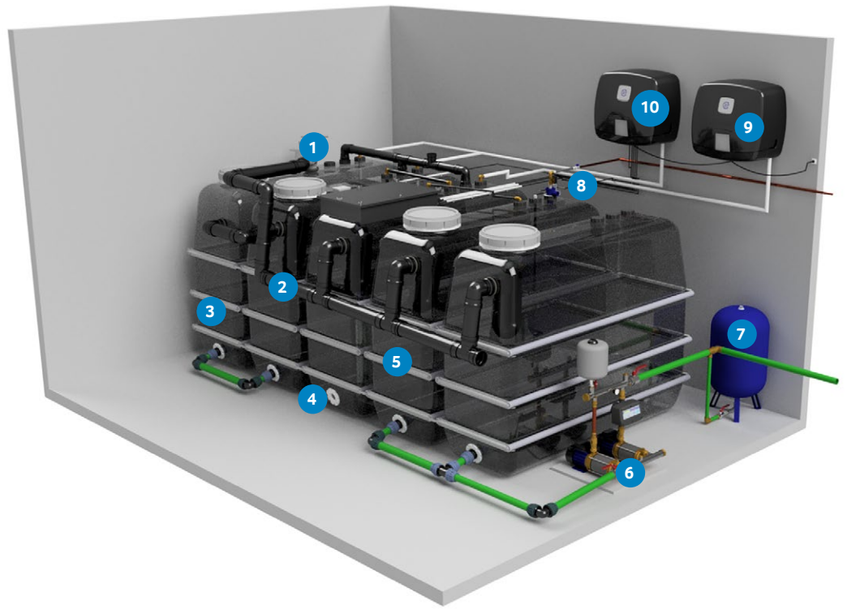
6. **Pressure boost**
This system brings the water to the secondary inlets at the right pressure such as washing machines, toilets, urinals or service taps.

7. **Pressure vessel**
The pressure vessel reduces the start-stop switches of the pump, which extends the lifespan of the system.

8. **Rain-water or drinking water replenishment**
This system automatically switches to rain water or secondary drinking water via the Belgaqua-certified connection when the treated grey water runs out.

9. **Controller**
This controls and monitors the entire grey-water system.

10. **Compressor**
The compressors ensure permanent aeration of the system.



06 TOWARDS FILTERED GREY WATER IN 6 STEPS

1

1. Mechanical filtration with an automatic flushing system

A Trident grey-water filter separates the first dirt particles from the grey water.

2

2. Into the storage tank

The grey water is discharged into a storage tank.

3

3. Biological cleaning

The water undergoes active cleaning by means of computer-controlled aeration, with added carbon and bacteria.

4

4. Through the membrane filter

The GEP membrane filter guarantees additional filtration of the water.

5

5. Storage of clean, filtered water

The filtered grey water ends up in the clean-water tank.

6

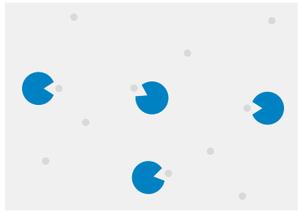
6. Pump system for reuse

From the clean-water tank, the filtered water is pumped into a secondary water pipeline.

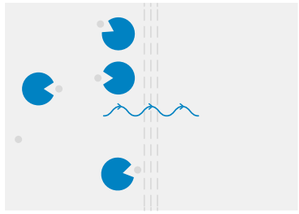
Certified by:

BELGAQUA

kiwa



In the first tank, bacteria clean the water so that it is free of organic waste.

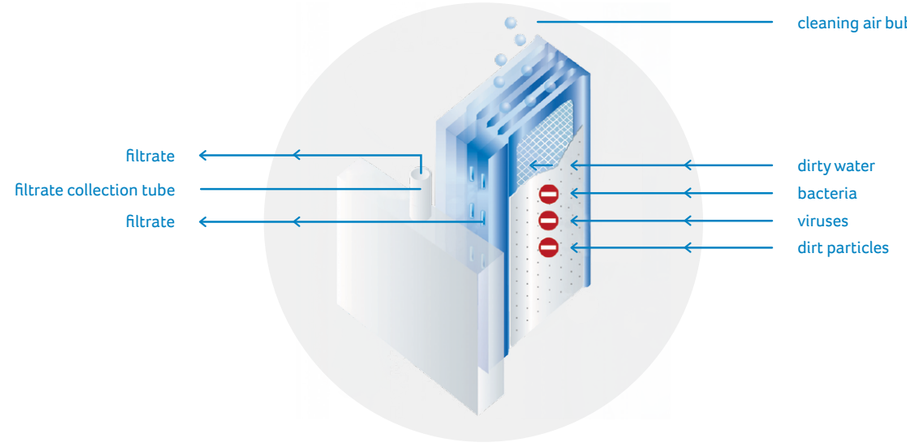


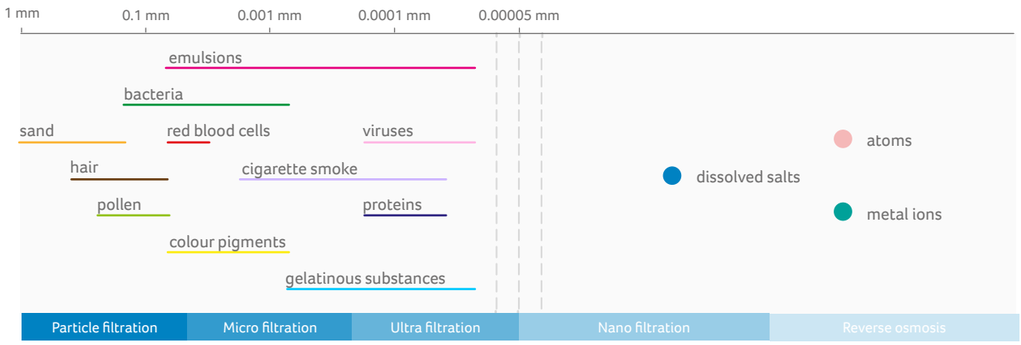
The membrane filter stops other dirt particles in the water.
Not even viruses can get through.

The magic of the GEP membrane filter

After the active biological treatment, grey water undergoes an additional 'cleaning' by means of a unique membrane filter. Membrane filtration is generally considered to consume a lot of energy. GEP has developed a patented system in which the **membrane is controlled purely by gravity**, without the use of chemical additives. This limits the energy costs, and maintenance is only required once a year.

How does it work?
The GEP membrane filter consists of several frames with an ultra-fine filter cloth stretched across. The frames are folded together like a harmonica so as to create a compact membrane with an extremely large filtering surface. When the grey water flows through it and into the clean-water tank, the dirt remains on the filter surface. Not even viruses can get through!





07

CUSTOM GREY-WATER SYSTEMS

A single family does not produce the same amount of grey water as all the guests of a hotel combined. A grey-water system tailored to your needs is therefore a must to guarantee its efficiency. That is why GEP offers you **modular grey-water systems.** By installing several bio-membrane tanks (BMTs) tanks in parallel, we create grey-water systems that can handle anything from 1,000 litres a day up to an unlimited capacity. This modular aspect also enables us to use both underground and above-ground tanks, making it a flexible and affordable system.

Separate pump systems
It is also very important for us to guarantee the reliability of our grey-water systems. Therefore, we can provide separate pump systems for each project. GEP offers single, double and triple pumps, which can optionally be controlled by frequency.

08

ABOVE-GROUND GREY-WATER SYSTEMS

You can choose to install your grey-water system outdoors. With such systems, you can expect to save 40-60% of water. If you opt for an extension with a rain-water well, the potential savings are even higher. The recycling capacity of a decentralised grey-water management system ranges from a minimum of 1,000 litres to an unlimited capacity.

Why opt for an above-ground system?

- no excavation works
- up to 60% water savings
- can be connected to a rain-water well for even greater savings

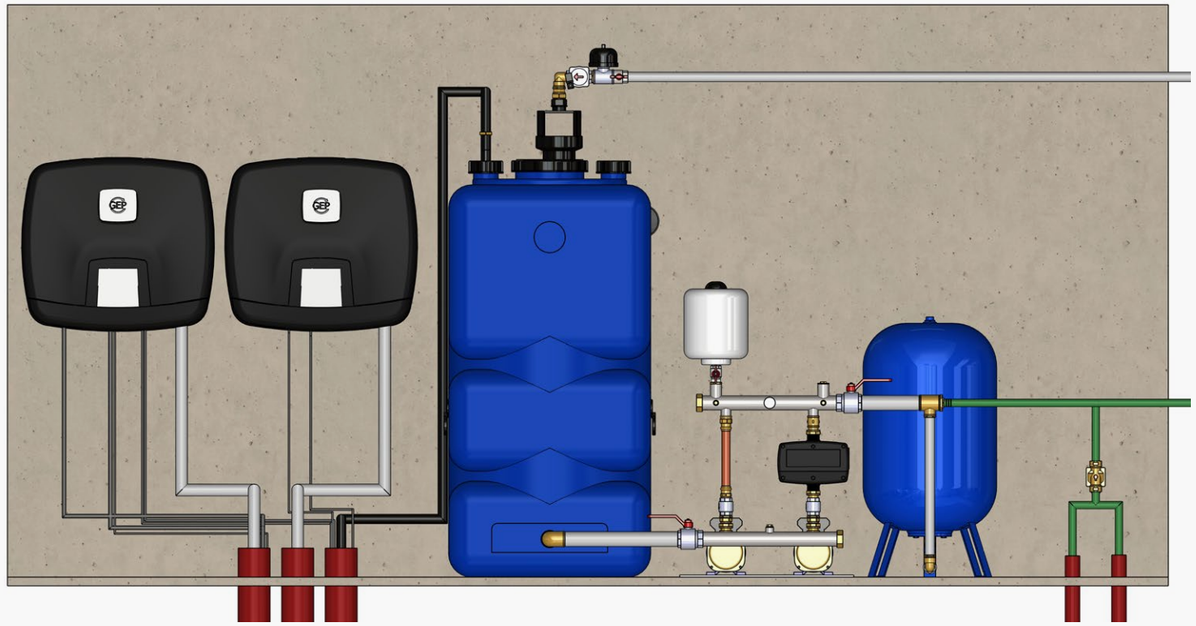
09

UNDERGROUND GREY-WATER SYSTEMS

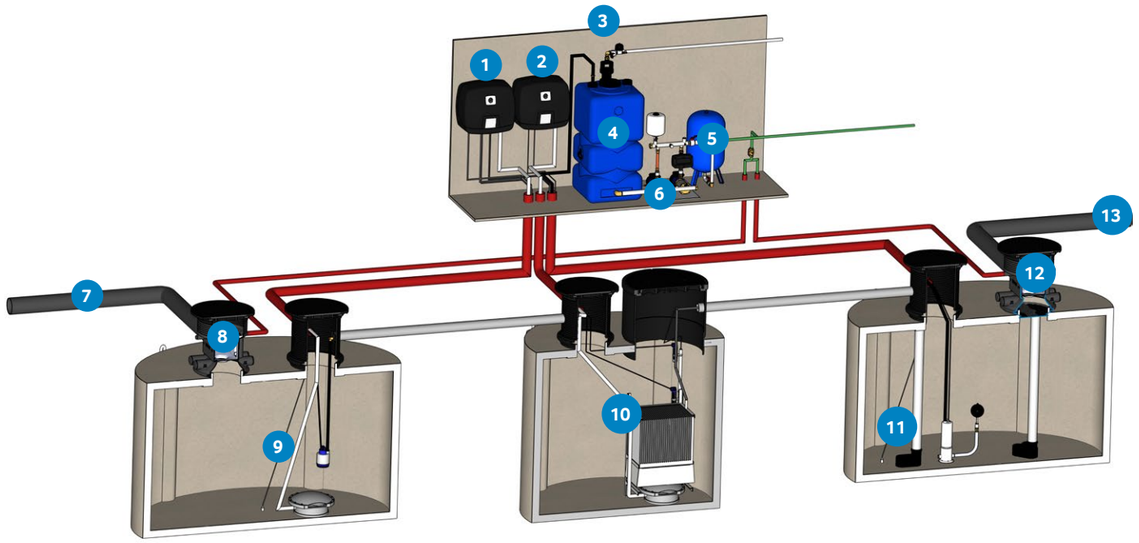
No space for an above-ground system?
No problem at all! GEP can also easily install your grey-water tank underground. The system then consists of a plastic or concrete reservoir for the grey water, a treatment tank with a bio-membrane filter and a storage tank for the treated water.
GEP supplies the bio-membrane tank (BMT) as a complete plug-and-play unit.

Why choose an underground system?

- space-saving
- ideal for apartment buildings, hotels, sports centres and camp sites



Set-up of underground grey-water systems



1. Controller
2. Compressor
3. Tap water refill
4. Buffer tank
5. Pressure vessel
6. Pressure boost
7. Grey-water inlet
8. Mechanical pre-filter
9. Grey-water collector tank
10. Membrane tank
11. Clean-water tank
12. Rain-water filter
13. Rain-water inlet

Concrete reservoirs have a capacity of 3,000 to 20,000 litres, so they can hold quite a lot of grey water. Decentralised grey-water management in underground tanks is also an option today.

10 ALWAYS CONNECTED TO YOUR GREY-WATER SYSTEM

Via your smartphone

Every grey-water system is equipped with a GEP controller that regulates and monitors its operation. In addition, a smartphone module is under development, which will allow you to receive **parameters and status notifications via SMS or e-mail**. The app shows you an accurate analysis of all system functions. This enables you, as a user to consult the system remotely.

Smart management with your smartphone

Receive remote notifications of:

- the number of litres of drinking water you have saved
- the number of litres of recycled grey water
- the maintenance status of the membrane filter

check your grey-water manager in real time

total water consumption

Filtering capacity
50 L

Amount of water saved
20 L

Online portal

GEP is also working on **more extensive monitoring software**. Via an online portal you will be able to view even more interesting figures, such as the current production capacity, the amount of water saved and data related to your total water consumption. Thanks to this software, your grey-water system can also be easily connected to your home automation system.

ALSO KEEN ON REUSING YOUR WATER?

If you decide to join forces with GEP, how do you get your grey-water system up and running?

1

1. Quotation request and calculation

After an initial meeting with one of our employees, you will receive a quotation tailored to your project.

2

2. Design sketch

Our team will draw up a plan for your grey-water system based on the chosen installation, reservoir and storage capacity.

3

3. Production

Do you like the design of the grey-water system? Then we can start producing it.

4

4. Installation

GEP takes care of the delivery and installation of your grey-water system.

5

5. Assistance on site

Our site supervisor checks that the installation is running smoothly and is on hand to give advice. For newbuild projects, we recommend that the system is only put into operation once 50% of the planned occupancy has been reached.

6

6. Maintenance

Have you noticed any malfunctions or wear and tear in your grey-water system? Our service technicians will quickly solve the problem. Depending on your consumption, we recommend a maintenance check once a year.

Need the specifications?
Request them free of charge via **info@regenwater.be**

11 OPTIONAL ‘WAAS’:

WATER AS A SERVICE

With WaaS, you only pay for the recycled grey water you consume and not for the entire installation.

WaaS: Water as a Service.

Do you want to reduce your water consumption and bills at the same time? Why not choose a **leasing package for your grey-water system** based on Water as a Service, or WaaS for short? Grey water then becomes a service instead of an investment.

How does WaaS work?

With WaaS, you, as an end consumer, only pay for the number of cubic metres of recycled grey water consumed. As a result, you spend as much or even less money on grey water than on tap water and you do not have to waste valuable water on daily chores like watering the plants in your garden. GEP remains the owner of the system and bears the costs for the design, delivery of materials and installation. The annual maintenance is also part of the service package. This reduces both the investment cost of the project and your final water bill.

A WaaS grey-water system offers the ideal, sustainable solution for apartment buildings and collective housing complexes. In these contexts, there is often not enough rain water available to supply all the inhabitants. A smart switch to recycled grey water for toilet flushing, service taps and washing machines, for example, prevents the unnecessary consumption of valuable drinking water.

Interested in leasing a grey-water system?

Contact us at **www.regenwater.be** to discuss your WaaS plan.

12

REFERENCES IN THE SPOTLIGHT

Sans Souci, Jette
- GWM2000 above-ground
- apartments and office building
- Samyn & Partners

Kuborn, Anderlecht
- GWM9000 underground
- 20,717 m² of apartments
- DDS+

PAI India Natie, Antwerp
- GWM2000 above-ground
- 3 ground-level residences, 6 retail units, 41 apartments and 2,800 m² of office space
- PULS, Cuypers & Q, Poponcini & Lootens, and Raum

AGC Glass, Louvain-la-Neuve
- GWM3000 above-ground
- office building for 500 occupants
- Samyn & Partners and BEAI, in cooperation with Van Roey

Vandergoten, Laken
- GWM2000 above-ground
- 53 houses with excellent energy performance
- R2D2 architecten

ABOUT GEP

GEP offers a wide range of **climate-adaptive solutions for the reuse of water.** Moreover, at GEP we go one step further than our competitors: we are constantly working on new products and systems to provide an innovative answer to the ecological needs of today and tomorrow.

Over the past 20 years, GEP has evolved into a leading player in the field of rain-water and grey-water systems. With offices in Belgium, Germany and the Netherlands, our product knowledge covers various markets. However, our ambition always remains the same: to optimise the quality and reuse of water by making sustainable and safe solutions available to everyone.

"Together we can combat water scarcity. That is why GEP wants to make grey-water recycling accessible for everyone."

Philippe Courcelle
Advisor at GEP

"Rethinking water for the future"

BELGIUM
19 years

THE NETHERLANDS
24 years

GERMANY
07 years

Our activities and products

- Rain water
- Disconnection & infiltration
- Grey water
- Waste water
- Break tanks
- Drinking water
- Miscellaneous

rethinking water

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