

# Challenges in wastewater treatment

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Water boards are facing a number of challenges:

- Costs
- Flexibility
- Change in supply
- Apply new technologies
- Reuse water
- Maintenance
- Sustainability
- Energy consumption
- Required space

To become future proof, they need to take on a more sustainable approach and improve the quality of treated water while lowering costs. In designing the sewage treatment plant of the future, letting go of the conventional plant is key.

## A new standard in wastewater treatment

In finding the best approach to face these challenges, Waterschapsbedrijf Limburg (Water Board Limburg) in the Netherlands chose to look at the future with a completely open mind. Letting go of the conventional Sewage Treatment Plant (STP) was the key to the development of a completely new way of designing and constructing sewage treatment plants. It led to Verdygo: a modular, sustainable sewage treatment plant with an above ground setup. All the technical equipment is designed in the form of container-sized, transportable plug & play modules.

An important asset of Verdygo is its full flexibility. From grit chambers and jacks to aeration tanks and pumps: everything can be replaced, expanded or removed when needed. Any chosen technology can be applied and new technologies can also be quickly incorporated. With Verdygo, it is possible to design a Sewage Treatment Plant that fulfills your specific needs. This flexible setup allows for easy anticipation of the faster than ever changing conditions and dynamic developments that take place.



## Verdygo compared to a conventional plant

The Verdygo design and construction technique has many advantages compared to the conventional Sewage Treatment Plant, such as improved flexibility, higher sustainability and cost reduction in construction, operation and maintenance. A conventional STP is built to last for at least 40 to 50 years.

Robust construction methods are used, often including part-underground concrete structures and underground pipework. That makes both building and maintaining them a time-consuming and high cost operation. The conventional plants are also characterized by their inflexibility. When external factors change, it is difficult and expensive to adapt the existing plant.



## Verdygo BV

Verdygo BV was established in March of 2015 to pursue knowledge exploration and knowledge exchange with private parties at home and abroad. Verdygo BV acts as a consultant in wastewater solutions and provides related services. Verdygo BV works with commercial partners to market Verdygo on a global level and provides services to support modularization and standardization in projects with local partners.

## Modularity, standardization, flexibility and sustainability

These are the keywords of Verdygo. Using modules that are built above ground and connected by means of plug & play, means components can be added or removed. This makes it easy to respond to technological, demographic and climatic developments. It also enables efficient and inexpensive maintenance and improves work experience.

All the necessary equipment for Verdygo plants is built in standard modules. Redundant modules can be reused in other plants, which improves sustainability. Moreover, energy use is lowered – also reducing costs – and all building materials can be reused. Both the financial investment and required time for designing and building a Verdygo plant are substantially lowered. Design and construction times are 40% lower compared to a conventional Sewage Treatment Plant. Standardization reduces investment costs by 20%. The financial advantage is not limited to the construction phase: operational costs are also much lower: a net annual cost reduction of 10% to 20% can be achieved.

## Key benefits

- Makes customized purification possible
- Made to measure solutions
- Full flexibility when it comes to
  - Changing environmental factors
  - Technological developments
- Modular (Plug & Play)
- 20% cheaper than conventional plants OPEX and CAPEX
- High level of standardization
- Above ground

## Our mission

**Verdygo BV aims to make wastewater treatment flexible, inexpensive and sustainable. We have therefore developed an innovative modular design and construction technique including plug & play connections to enable customized wastewater treatment.**

## Waterschapsbedrijf limburg

Waterschapsbedrijf Limburg (Water Board Limburg) is Verdygo's parent company. It is a public organization that produces purified wastewater by transporting and treating wastewater and drying dewatered sludge. This wastewater originates from the 500,000 households and 30,000 companies that are connected to the sewage system in the Province of Limburg in the Netherlands.



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