TOP DUTCH
A good place to be great

WEATHERING THE STORM

Solving global water challenges together

Drinking water is becoming scarcer and industrial companies are producing more polluted wastewater, presenting major challenges for water technology in many different industries. Similar challenges play out from the oil and gas industry to the food industry - how do you limit wastewater and how do you treat it efficiently whilst using as little energy as possible?
The water industry has an important role to play.

WEATHERING THE STORM: SOLVING GLOBAL WATER CHALLENGES TOGETHER

1.

CHALLENGES IN THE WATER INDUSTRY: CLEANER, MORE SUSTAINABLE AND MORE EFFICIENTLY

Purer wastewater. Industrial production processes release large amounts of wastewater that cannot be discharged by companies just like that; the water needs to be treated first. Furthermore, discharging water costs money. In other words, **industry has more than enough reasons to invest in water-treatment plants.** The water industry produces these types of plants, and not just for the money. 'We consider it our mission to improve water treatment in such a manner that we have enough drinking water available for everyone in the long term', explained Eric Wildeboer, CEO of the German company Berghof.

‘Drinking water is becoming much scarcer. We are already in a situation where one billion people around the world do not have access to clean water and that will only get worse.’ That presents the challenge for the water industry - improving wastewater treatment to such an extent that it can actually be reused as drinking water. ‘This is also in the interest of companies themselves,’ said Eric Wildeboer. ‘Take the production of beer and soft drinks for example. Those drinks largely consists of water. If the industry does not improve its reuse of water, they will run out of water for the production of their own product in the long run.’

More raw materials

It’s not just water that is becoming scarcer around the world, the same applies to agricultural land, even though there is a growing global population that needs to be fed. For one kilogram of meat, you need 10,000 kilograms of water. For one kilogram of grain, 1,000 kilograms of water.

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Eric Wildeboer, CEO of the German company Berghof

The TopDutch company Wafilin Systems develops, designs and supplies membrane filter systems for the food and dairy industry as its contribution to solving this issue. 'We work together with starch-potato producer Avebe, for example', said CEO Henk Schonewille. 'Eighty percent of a potato consists of water that is released during the extraction of starch.

However, that water still has two percent of protein that used to end up in the wastewater, or was processed into low-quality animal feed. With a jointly developed purification concept, Avebe is able to filter this protein from what once was wastewater and can now be used for feed, or be further processed as a supplement for the food industry.' An additional advantage is that the energy consumption of the total processing process is reduced by more than twenty percent.

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Henk Schonewille, CEO Wafilin Systems

Less energy

A third challenge for the water industry lies in energy consumption. Energy prices are rising around the world and there is a growing call for low-energy production. So companies, such as Berghof and Wafilin Systems, are working on low-energy membrane systems. Henk Schonewille illustrated how treatment systems also save on transport costs. 'A part of cows' milk is thickened and used to produce milk powder and cheese. Usually, it is thickened in the milk factory. We are now working on a membrane system that can be positioned after a milking robot or milking carousel, and this would thicken the milk immediately after milking. It means less volume is transported from the farmer to the factory, which saves on fuel costs and benefits the environment.'

Stronger together

Berghof and Wafilin Systems are only two examples of companies that operate in the water industry, but there are many more at a global level. 'The water industry is incredibly fragmented,' said Gerard Schouten, who is CEO of a number of companies in this industry. 'There are many SMEs that specialize in point solutions within water technology. There are really only a few major global players.' At the base of WaterCampus is a collection of SMEs. The Center for Expertise Water Technology (CEW), the Water Application Center (WAC), and the Water Alliance work together to bring cooperation for such companies in the WaterTech sector. 'With all these point solutions it is difficult for the industry to find the right solution for all their issues. That can only be achieved by working together with several companies.' This cooperation, this joining of forces, is another challenge faced by the water industry over the coming years.

2.

TOPDUTCH ECOSYSTEM: WATER CAPITAL OF EUROPE

Developing new innovations in response to demands from industry requires cooperation between fundamental science, applied science and the business community. In the northern Dutch city of Leeuwarden this is becoming commonplace at WaterCampus, where they strive for global cooperation in the area of water innovation.

WaterCampus

More than 25 companies that work on water innovation and water technology are located at WaterCampus. From this campus they are linked to another 200 companies around the world. It produces short lines of communication and massive opportunities and options for cooperation. WaterCampus also works together with 21 European universities and research institutes and with 5 regions outside Europe as part of the Global WaterTech Hub Alliance. Around the world, WaterCampus is recognized as the European hub for WaterTechnology.

Fundamental research

At WaterCampus, new innovations are sometimes created from fundamental research. In the Wetsus research center, there is intensive cooperation between fifty professors of various disciplines from all around Europe. This makes Wetsus the biggest joint WaterTech program in the world.

Johannes Boonstra, member of the Board, explained how that works. 'Wetsus is a scientific institute where, at the moment, sixty-five PhD researchers are working on a whole range of themes. But we work on the basis of demand and requests from businesses. We have more than 100 affiliated companies who pay a contribution and help to co-finance the research. The issues we research come from business or from the affiliated universities. But the businesses themselves have the final say - they decide the issues we will study.'

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Johannes Boonstra, member of the Board of the WaterCampus

'The knowledge we develop is primarily for the market. Businesses pay for the research, so the knowledge is theirs. In essence we link the commercial issues of the market with fundamental science, and that ensures the application is often close at hand. Sometimes it produces 'spill-over' knowledge, when we discover new, promising facts during other experiments. With the help of the facilities of the WaterCampus, spin-off companies are developing them further.' Wetsus regularly has external evaluations, both in the field of science and its contribution to the economy. The highest possible scores are always achieved on both aspects.

Centre of Expertise and the Water Application Centre

The applied research, which often follows Wetsus' fundamental research, can be carried out at WaterCampus - the Center of Expertise for Water Technology (CEW) supports companies with setting up such research. The required facilities are available in the Water Application Centre (WAC) that is also located at WaterCampus. This center is located in the Van Hall Larenstein University of Applied Sciences. In the laboratory, part of which is used for educational purposes, businesses can hire space for their own research on a temporary basis and use all the facilities of the laboratory. Students of the University of Applied Sciences often collaborate on research in the context of their internship.

Into the market

WaterCampus also provides facilities for marketing new technology. As businesses are close together, that generates plenty of cooperation. The Water Alliance often plays a role too, commented co-initiator Gerard Schouten. 'The Water Alliance strives to bring companies from the Netherlands and abroad together. By inviting trade delegations to Wetsus and taking them on a tour of WaterCampus. We show how we work together on innovation and bring them into contact with companies they could do business with.'

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New talents

The cooperation between the business community and education has made WaterCampus a great place for finding new employees. There is nowhere else in the world with as many talents in the area of Water Technology as in the north of the Netherlands. Whether they are technicians with intermediate secondary vocational education, a water engineer with higher secondary vocational education or academic researchers, they are all available at WaterCampus. There are plenty of links between the businesses and education - through opportunities for internships and cooperation in research, companies come into contact with major talent almost automatically. Many companies have employees who studied at WaterCampus. After their internship, promising students are often prepared to work for a company at the Campus where they continue to learn and study.

A complete chain of innovation

1. Market demand

- Direct access to European market via the European Hub location
- Access to international market via Global Water Tech Hub Alliance

2. Ideas

- World class education & lifelong learning
- Yearly waterSEED challenge
- Two Global WaterTech Hub Alliance challenges
- Pre-seed funding available

3. Research

- 24 research themes
- >100 research projects
- 83 patent applications
- 33 spin-offs

4. Water Application Center

- 6 applied research themes
- Unique triple helix collaboration
- 4 physical facilities available

5. Demo sites

- 5 demo sites

6. Launching customer

- Launching government
- 3 incubator programs
- 3 business funding partners

7. Cooperation

- 237 network partners
- 109 international projects
- 5 international hub partners

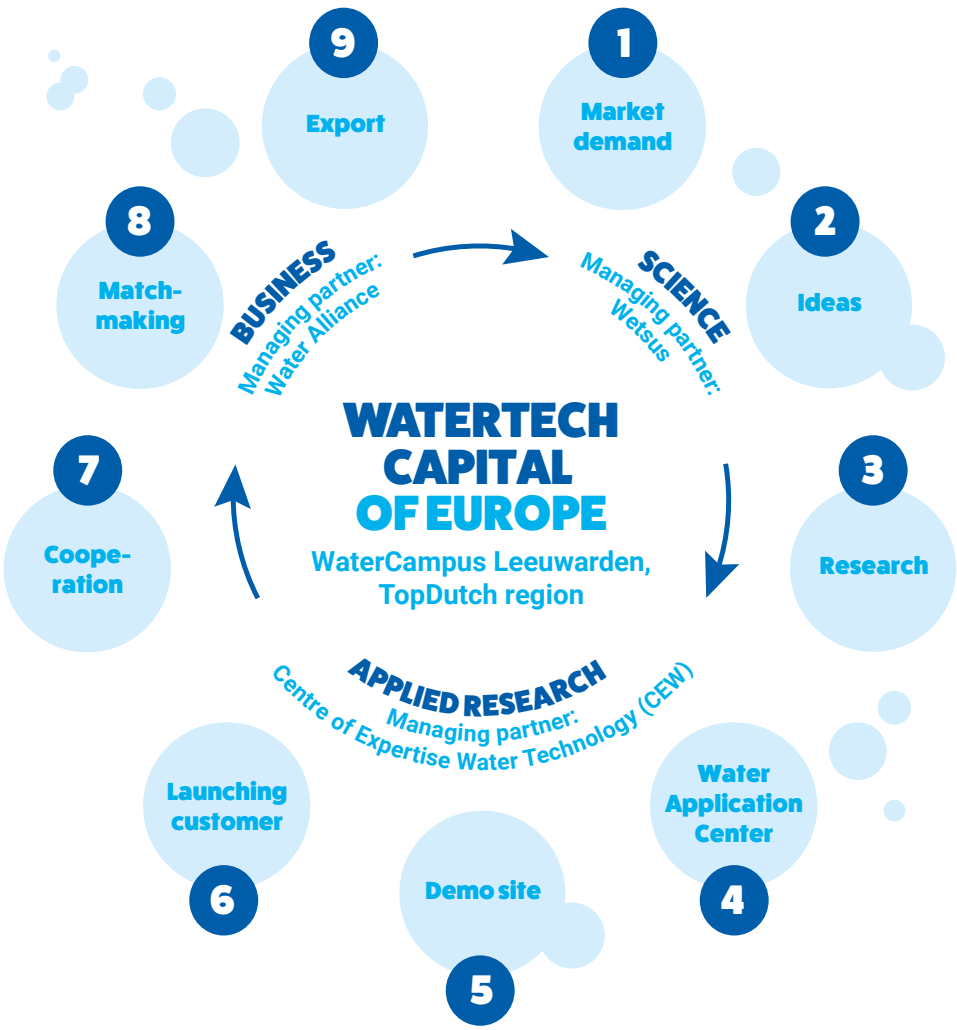
8. Matchmaking

- 18 organized events
- 35 international conferences
- 29 received company & 16 trade visits

9. Export

- 75% companies exporting activities
- Export quote WaterTech: 35-40%

The Water Alliance also goes abroad on a regular basis, often with companies to trade fairs or outgoing trade missions. 'They recently visited South Korea, for example, because we have had a good relationship with the Korean Water Cluster for years. The aim is primarily to stimulate business between the two countries. The Water Alliance is always interested in challenges in the field of water technology where possible Dutch solutions can be deployed. In this way the Water Alliance has contacts in many countries.' This is how the Water Alliance connects and facilitates companies at local and international level.



3.

POWER OF COOPERATION: INNOVATIONS IN PRACTICE

The facilities and cooperation at WaterCampus have produced wonderful innovations. A few examples of the power of cooperation in the TopDutch region.

The strength of the Water Application Center

The company Wafilin Systems is one of the companies that invested in the Water Application Center at WaterCampus. For years, the company has had its own place for their test equipment in the laboratory. Henk Schonewille, CEO of Wafilin Systems, sees the benefits. 'Our company is located opposite the Van Hall Larenstein University of Applied Sciences, where the Water Application Center is based,' he said. 'We need a test site for developing new applications, and now we have one across the road. We also have

short lines of communication with the university's professors, who are always prepared to be a sparring partner and who have a wealth of knowledge.' Henk Schonewille is also enthusiastic about the opportunity of interns just around the corner. 'One of our new graduates, who had helped to develop and test a new system during his graduation project, is now employed by us as an engineer. He still works on the same system, but on designing it further and delievering it to a client in the food industry.'

WaterCampus as a USP

Apart from the nearby Water Application Centre and the large number of young talents at WaterCampus, Henk Schonewille highlights another major benefit of WaterCampus. 'When we show potential clients around and show where we develop and test our new systems, they are sold immediately. WaterCampus provides a unique network, a source of knowledge and the right facilities for developing new innovations. That is so unique, clients only need to see it to be convinced that a company on this campus can only deliver good work.'

German company locates in the Netherlands

It's with good reason that the Germany company Berghof Membranes based itself at WaterCampus. The Berghof Membranes factory is still in Germany but Eric Wildeboer's department, Sales and Innovation, moved to WaterCampus in 2008, when it had just started. Eric Wildeboer is extremely positive about the location. 'The strength of this region is the network of water companies, the link between application and research, the support for start-ups and the provisions for companies that want to innovate.'

Eric Wildeboer sees remarkable differences between the Dutch and the German mentality. 'Dutch people tend to work together,' he explained. 'Compare it to painting a still life. A German painter would prefer to paint it all himself; he might be good at painting a bunch of flowers, but not the crockery next to it. He'll do it anyway, because it happens to be part of the painting. A Dutch painter would paint the bunch of flowers himself and then look for another painter who is good at the crockery.' That's what happens in business, according to Eric Wildeboer. 'Everybody knows their own strong

points, but is also aware of their own weaknesses and they are prepared to work together. That is how you can put good, new products in the market together. In the end there is one company that sells, but it is often produced in cooperation.' At the same time he doesn't imply that Dutch people are better full stop. 'Germany is a superb country for production. German 'pünktlichkeit' is world famous and guarantees good quality. 'Made in Germany' is still an excellent trademark. The Dutch commercial spirit and creativity are good for selling products, for working together with others and for developing new innovations at pace.'

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Are you interested in exploring what your business possibilities could be? Connect with Reinder de Jong, our WaterTech expert.

T: +31 6 255 472 73
E: dejong@nom.nl

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