

waterproof

wateralliance



**ALLIANCE IN THE
FIGHT AGAINST
CYANOBACTERIA**

**TRIP
TO
ITALY**

**THE CHALLENGE-
RESPONSE
WORKSHOP**

**THE LARGEST DRINKING
WATER COMPANY IN
THE NETHERLANDS**

CONTENT



FESTIVAL
AS TRIAL VILLAGE



ERIC VAN DER KOOIJ
FROM VITENS



INNOVATION AVENUE



WATERSCHAP DE DOMMEL
REPORT H2MOTION AND AQUACOLOR UNITE



WATER TECH
EXPERIENCE TOUR



MORTEN KILDAHL-SORENSEN
THE CHALLENGE -RESPONSE WORKSHOP

AND: INTRO BY HEIN MOLENKAMP..... 03
 NEWS IN BRIEF..... 04
 TRIP TO ITALY..... 06
 EUROPEAN WATER TECH WEEK 2018..... 17
 INFOGRAPHIC..... 22
 MEMBERS OF THE WATER ALLIANCE..... 26

COLOFON

WaterProof is the magazine of the Water Alliance, a partnership between government, research institutions and industry in the field of innovative and sustainable water technology. From its base, the WaterCampus in Leeuwarden, the Water Alliance builds on the 'water technology innovation chain'; a process whereby new ideas from universities, laboratories and test sites are converted into worldwide marketable products. WaterProof provides regional, national and global information on developments, results and background in the field of water technology.



Editor in Chief Menno Bakker
 Journal Management Brenda de Jong,
 Narvic Media & Communicatie | www.narvic.nl
 Text Contributors Casper Ferwerda, Mark Grupstra,
 Menno Bakker and many others
 Translation Context Talen
 Graphic Design Jan Robert Mink | www.minkgraphics.nl
 Cover Photo Dik Nicolai | www.diknicolai.com
 Photography Frans Fazzi, Nico Pakvis and many others
 Printer Drukkerij Van der Eems

INTRO by Hein Molenkamp

LOOKING TO THE FUTURE

"The future belongs to those who believe in the beauty of their dreams", Eleanor Roosevelt (1884-1962), American President Franklin Roosevelt's wife, once said. And it is true. Take entrepreneurship. The world - and the water technology sector is no exception - is full of people with bright ideas. And many of these people with ideas feel, or even know, that they have come up with something that may be of great value to others. They have the ambition to make a business out of it. And they dream of global success. It's exactly for those companies that Water Alliance was founded. We love people who look to the future and chase their dreams. Because the future is where it happens. Or, as Einstein once so rightly said: "I'm more interested in the future than in the past, because the future is where I intend to live."

Naturally, we glance to the past once in a while in our magazine WaterProof. We do this because we want to inform and inspire people by reporting on successful stories from members, events, symposiums, and exhibitions. In short: looking back at recent events and pointing them out to be able to learn and look ahead and be innovative. That is what we do.

Regarding the latter: Innovation is an absolute must for entrepreneurs who wish to be successful. That is why, in this special edition of WaterProof, we look ahead to Aquatech Amsterdam, where Water Alliance is one of the initiators of the Innovation Avenue. An avenue of Dutch water technology companies, linking their technological expertise to ambition. Each and every one a forward looking entrepreneur. Because they, as Eleanor said, "believe in the beauty of their dreams." I wish you a successful Aquatech Amsterdam, many new business contacts and inspiring reading.

Hein Molenkamp

Managing Director, Water Alliance

'Innovation is an absolute must for entrepreneurs who wish to be successful'



The Dutch present new innovations at USA Water Conference in Akron



The USA Water Conference 2017, organized by the City of Akron and the Akron Global Water Alliance (AGWA), was held 31 May and 1 June at the University of Akron in Ohio. Key topics were harmful algal blooms (HABs), algal toxins and other emerging issues in water treatment. More than 200 delegates attended.

Tight collaboration between the Dutch Water Alliance and AGWA paved the way for many Dutch contributions. Presentations by the Water Alliance, Deltares, the European Water Stewardship programme, the University of Amsterdam and BW Products were well received. Some elicited special interest among US parties, and perhaps will be recalled as the first step towards fruitful collaboration.

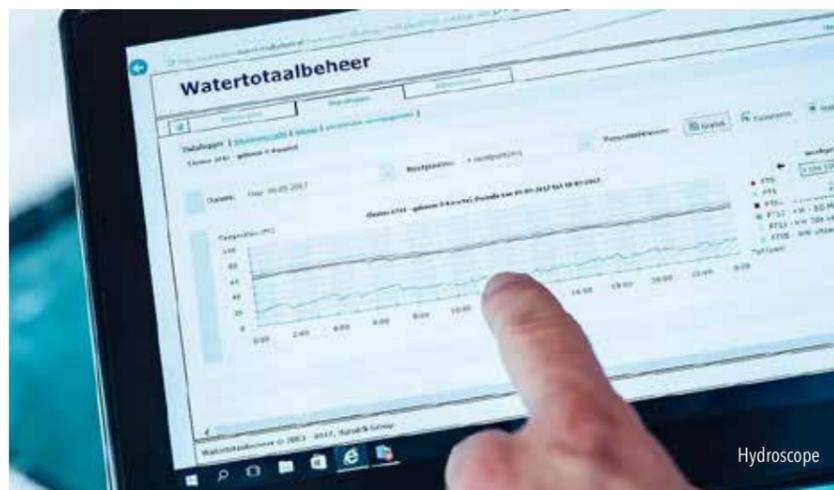
Water Pavilion NL



At the 90th WEFTEC in Chicago (30 September to 4 October 2017), Water Alliance, NWP and ENVAQUA set up a Netherlands Water Pavilion, in partnership with the Dutch embassy in Washington DC and the Dutch consulate in Chicago. To give Water Pavilion participants more exposure than elsewhere on the exhibition floor, we arranged for a strategic spot at the venue, and ensured good visibility (thanks to Holland Branding), along with a spacious reception area and networking events.

THEY DON'T STOP AT ADVICE, BUT ACTUALLY STAND AT THE CONTROLS THEMSELVES.

Hydroscope and HydroBusiness team up with the European Water Stewardship



Water Alliance member the European Water Stewardship (EWS, originally based in Brussels, but since 2015 located at the WaterCampus Leeuwarden) is teaming up with the sister companies Hydroscope and HydroBusiness. A partnership agreement to that effect was signed in July by the parties. With it, the companies join a fast-growing European network of businesses accredited to help organizations design better and more sustainable water management systems -- and in doing so qualify for an EWS certificate.

"As a water system consultancy, for years we have given our customers practical tips for saving water, but sustainable water use is wider", says Kevin Kanters, Hydroscope's director. "Consider, for instance, prevention of water contamination, and closing the water loop. By working according to the EWS approach, we can support our clients in the full breadth of sustainable water management." Joost Smetsers, account manager at HydroBusiness agrees: "In developing water and wastewater treatment facilities, we have helped dozens of companies increase the sustainability of their water supply. Under the EWS programme, companies can earn a bronze, silver or gold certificate. Earning

such recognition is a crowning achievement of our of work." EWS director Tom Vereijken is enthusiastic about the new partners: "Hydroscope and HydroBusiness are a great fit with our growing European network of implementation partners. They take a comprehensive approach, have a clear vision of on-site water management and are open to innovation. In addition, they don't stop at advice, but actually stand at the controls themselves. That makes their contributions particularly valuable." Hydroscope and HydroBusiness are subsidiaries of Brabant Water. Hydroscope advises on water systems, takes water samples and carries out management. HydroBusiness supplies industrial water and purifies wastewater. EWS has already helped more than 100 organizations in Europe design their water management economically and sustainably. It works with a network of accredited EWS partners.

www.ews.info

Meet EWS at Aquatech Amsterdam.
Booth number: EWS 01.140

STILL GOING STRONG: FLEET CLEANER

Business is brisk for Fleet Cleaner. This former winner of the Water Alliance's innovation stimulation prize, the WIS Award, has seen its portfolio of international clients grow at a rapid pace. "We've had a long lead time", says Alex Noordstrand, "because after all it's a high tech product we produce. But now we're operating at full steam, and we've consistently been able to finish jobs for the big shipping companies within the timeframe agreed."

For those who may have forgotten: Fleet Cleaner is a cleaning robot that removes and collects fouling (slime, algae and barnacles) from a ship's hull. "That means the process can be done during loading and unloading", says Noordstrand. "By cleaning the

hull, shipping companies not only use up to 10% less fuel, they can also reduce their environmental footprint. Moreover, doing the cleaning in the port saves time and money", according to Noordstrand. The entrepreneur and his partner Cornelis de Vet have big ambitions. "What we have on offer could certainly be called a game changer. We are therefore very internationally oriented, with, among other things, a new marketing video we made to promote our product. Within five years we hope to be active in the world's ten largest ports."

www.fleetcleaner.com



AGREEMENT SIGNED BETWEEN THE BISON FOUNDATION AND ECOLORO

The Bison Foundation and EColoRO Watertreatment Solutions signed an agreement on Wednesday, 24 May, whereby Bison will provide the company a €50,000 loan. EColoRO will use the funds to pursue its international expansion plans. EColoRO, which like Bison is based at the WaterCampus Leeuwarden, has developed a technology for 'electrocoagulation'. With it, up to 96% of colouring agents and pigments can be removed from wastewater, so that the water can be reused. That yields major benefits, for instance, for the textile industry, which is typically a big user of water.

EColoRO expects growth particularly in countries like Poland, Turkey, Spain and Bangladesh. The loan will therefore also be used to help 'launching customers'

in Turkey and Spain with a test facility. "That kind of facility fits into a container, meaning that it is very transportable. You can liken our plans to a road show. We expect to be able to convince potential clients just by letting them see that it works", says director Eric van Sonsbeek. "In 2015 our technology won us Horizon 2020 status [the European subsidy programme for research and innovation, Ed.]. That allowed us to demonstrate our technology at a textile company in Ronse, Belgium. We now have a pilot plant operational there. In terms of marketing, this is the approach that works best. Go on the road with your technology and show what you can do. By doing that, we expect to achieve substantial growth in the coming years."

www.ecoloro.nl

Sand-Cycle wins UK Water Industry Achievement Award

Water Alliance member BW Products (www.bwproducts.nl) won the UK Water Industry Achievement Award with its latest invention, the Sand-Cycle. The Sand-Cycle is a water treatment monitoring tool that uses radio-frequency identification (RFID) technology. RFID has already been widely applied in many industries and consumer markets. But it had not yet been used successfully in the water industry. BW Products implemented the technology in moving bed biofilters to optimize performance and help operators get the most out of these systems.

More than 550 representatives of the water industry in Europe attended the awards ceremony, which was held in Birmingham, UK.

Meet BW Products at Aquatech Amsterdam.
Booth number: 07.520-L

First cheese made out of concentrated milk

Early this year Wafilin Systems won the WIS Award, the Water Alliance's innovation stimulation prize, with its 'Concentrating Milk' innovation. This innovation was developed at the WaterCampus, through collaboration involving various partners. Benefits in a nutshell: less energy use and lower transport costs, and the ability to reuse water. The question that remained was, "What happens to the quality of the milk?" Research and tests at the Dairy Campus in Leeuwarden have in the meantime determined that the quality remains excellent. The concentrated milk was recently used to produce cheese too. "From the very first cheese taste tests and analyses it was clear that mild Gouda cheese can certainly be produced with it", says Van Dalftsen of Wafilin. "Of course the cheese is rich in fat and protein, and in taste it was just as good as the 'normal' cheese."

Meet Wafilin Systems at Aquatech Amsterdam. Booth: Wafilin 07.520-O



Together with many Dutch companies, Water Alliance along with two of its members, Bluecon International and EColoRO, took part in a trade mission that paid a visit to Italy in late June, led by Dutch Minister for Foreign Trade and Development Cooperation Lilianne Ploumen. The visit coincided with the official state visit of King William-Alexander and Queen Maxima to that country.

An important item on the trade mission itinerary was a water seminar in Rome with both Dutch and Italian speakers. Furthermore, there was an afternoon B2B matchmaking event. At that gathering, Hein Molenkamp (Water Alliance) spoke with a variety of Italian business people and industry organizations interested in Dutch water technology innovations. The delegation also paid a visit the next day in the Milan area to the Bresso wastewater treatment plant, Seveso Sud. This wastewater treatment facility is owned by CAP Holding, a group that manages wastewater treatment for some 200 municipalities around Milan and in the provinces of Monza, Brianza, Pavia, Varese and Como. At the Bresso plant visited experiments were under way, in collaboration with Fiat Chrysler Automobiles, on conversion of biogas into biomethane. Work was also being done on the use of algae in wastewater treatment and production of fertilizer derived from wastewater.

There was more to experience too. A highlight for the soccer enthusiasts was a clinic presented by Clarence Seedorf, with young local talents, on Milan's Piazza del Duomo. But the Holland Trade Dinner at the Palazzo Reale, the former royal palace next to the cathedral, was also an unforgettable event for the guests. In the presence of King Willem-Alexander and Queen Maxima, Mayor Sala of Milan, Dutch ambassador Joep Wijnands, Minister Ploumen and others took the floor.

A day later, during the WaterForum 'Innovation & Water for Quality of Life: A Renaissance of the Leonardo da Vinci Spirit' in Milan, many topical water issues were raised in round table discussions. King Willem-Alexander and Queen Maxima circulated from group to group, pausing for a considerable time to join the table on the circular economy, at which Hein Molenkamp, Jaap Stuiver (Bluecon) and Eric van Sonsbeek (EColoRO) participated, among others. Based in the village of Spankeren, near Arnhem, Bluecon International has developed a compact and modular decentralized wastewater treatment facility for the municipal market. EColoRO is based at the WaterCampus in Leeuwarden. The company focuses on wastewater treatment, in particular,

for the textile industry. Both companies look back with pleasure on their 'Trip to Italy'. "For us the objective was to explore sales opportunities in Italy and find potential distributors", says Jaap Stuiver. "We succeeded on both counts. The trip was very well organized, and thanks to the good matchmaking programme, we were able to establish contacts with a number of potential clients and with two candidates interested in a distributorship. During the trade mission we also gained more insight on barriers that still have to be overcome to be successful in Italy. As a bonus we were able to establish good contacts with the other members of the Dutch delegation. All in all, an excellent and useful experience that we would recommend to others."



A walk through the Portal Nuova District in Milan with the Dutch delegation



The Holland Trade Dinner at the Palazzo Reale

WATER AS A SOURCE FOR CIRCULAR ECONOMY.

FESTIVAL AS TRIAL VILLAGE



Popular festival act Franz Ferdinand headlined this year's WttV.

DURING THE WEEKEND OF 21, 22, 23 JULY, THE WELCOME TO THE VILLAGE (WTTV) FESTIVAL WAS HELD IN THE GROENE STER (GREEN STAR) NATURE AND RECREATION AREA NEAR LEEUWARDEN. THE FESTIVAL IS MORE THAN JUST A COLLECTION OF POP BANDS ON A STAGE, AND THE ORGANIZATION CONSIDERS IT THE VILLAGE—PERHAPS EVEN THE CITY—OF TOMORROW. INNOVATIONS FOR A MORE SUSTAINABLE SOCIETY ARE TESTED DURING THE FESTIVAL. THE DRIVING FORCE BEHIND THIS URGE FOR INNOVATION IS INNOFEST, AN ORGANIZATION IN WHICH EIGHT LARGE FESTIVALS PARTICIPATE. BECAUSE WATER TECHNOLOGY IS ONE OF THE ORGANIZATION'S SPEARHEADS, A SYMPOSIUM BASED ON WATER AND CIRCULAR ECONOMY WAS A MUST AT WTTV.

"A festival is a mini society where, in a way, visitors behave just like they would in normal, everyday life", says Innofest Director Anna van Nunen. "WttV is a perfectly controlled test environment. Something that works at a festival can also work for society." Smart use of water is one of the most important pillars for a circular economy. A water and circular economy themed meeting was therefore held with Water Alliance, Welcome to the Village, Frisian Design Factory, the Circular Friesland Association and Metabolic. "We used case studies", explains Jouke Smid. He helped organize the event on behalf of Water Alliance. "Water technology companies could

enter a case study in advance. During the meeting, the case studies were discussed with the other participants. This yielded good results, which the festival and the companies involved can use for a follow up."

SPACE TRAVEL

"As Sustainability Coordinator at Welcome to the Village, I entered the festival as a case study", says Douwe Luijnenburg. "We would like to be circular in water next year, but by 2022 at the latest. It is a rather ambitious goal. Events are, almost by definition, not sustainable. A lot of diesel is used to move a lot of stuff to the location, much of which is only used once. There is still much to be achieved in this industry."

The festival organization's ambitions have consequences. It means the event will produce a lot less wastewater or purify and reuse the remaining waste water. "This is already done in aerospace", according to Luijnenburg. "So, it is achievable, but cost-effectively it is complicated. Additionally, we have to take a close look at what we actually need drinking water for, and to what extent we can solve that with rainwater."

PAY OFF

All parties involved agree that no revolutionary game changers can be expected from a single symposium. "It would be very naive to expect that", according to Smid. "We were short for time, but the meeting led water technology companies to join a network of designers, festival coordinators, and government. The conviction to move forward together was very strong and it will of course pay off in the coming years. Our unique and inspiring location definitely contributed to its success."

The city of Leeuwarden will be the Cultural Capital of Europe in 2018. This will be celebrated with the European Water Tech Week Leeuwarden (EWTW 2018) which takes place from 24 - 27 September 2018. Hundreds of top specialists in the field of water technology, sustainability, and circular economy are expected to meet in Leeuwarden, the Netherlands. In the same year, the Welcome to the Village festival will once again take place near Leeuwarden on 20, 21 and 22 July.

Stay up to date on the programs by checking welcometothevillage.nl, wateralliance.nl and watercampus.nl



Take a walk along the Innovation Avenue

Dutch water technology goes all out at Aquatech Amsterdam



Noblesse oblige. As such, the Dutch water technology sector will go all out during their “home game” at Aquatech Amsterdam, part of the Amsterdam International Water Week from 31 October – 3 November 2017. “When it comes to innovative solutions, we are hearing ‘Bring in the Dutch’ more and more throughout the world”, according to Hein Molenkamp, Managing Director of Water Alliance. “As the world is coming to visit us early November, we want to show off the cream of the crop in terms of Dutch water technology. Visitors can experience it all at The Innovation Avenue.

Located in the centre of the Dutch Water Pavilion, we soon learn. It is a joint initiative between various partners (see margin, ed.), including Water Alliance. “Innovation Avenue offers a long overview of new and innovative technologies”, according to Molenkamp. “Visitors will be shown a range of samples of Dutch water technology in a brief time. The avenue is surrounded by various innovation-focused promotional campaigns.”

A quick look at the presented innovations confirms that Water Alliance and partners plan to go all out at Aquatech. The participants list includes several groundbreaking innovations, many of which have recently won awards. Salttech, for example, won the Aquatech innovation prize in Amsterdam with its DyVaR technology in 2015, which it has since developed even further. “Our technology is the first in the world that can extract inorganic components, such as salts, from water in one step”, says CEO Gerard Schouten confidently. “In short: a Zero Liquid Discharge technology which combines flexibility, low maintenance, and continuous deployment.” Aqana is also present at the Avenue. Reimond Olthof and partners’ company has developed DACS technology, a revolutionary anaerobic technology to convert organic components in industrial wastewater into biogas. There is a lot of international interest.

Award

Further along the Avenue is another company that is receiving a lot of international interest. BW Products, owned by Hans Wouters. Together with Aquabio, run by Wouters’ English partner Chris Heslegrave, BW Products won

the Water Industry Achievement award for Most Innovative New Technology of the Year in Birmingham this spring. The technology? Sand-Cycle. This innovation brings RFID technology to the water industry for monitoring purification processes. As the technology’s first specific application, Sand-Cycle is used in continuous sand filters for wastewater treatment, as well as rinse water treatment by drinking water companies. “The advantage for the user is that it provides much better insight into the purification process”, says Age de Boer, who works for the company. “Previously, operators had to manually measure the progress of a purification process, which was often simply not done because it is labour intensive. As a consequence, sand filters could jam unnoticed, or did not yield the expected performance at all. This meant that water purification plants could once again have trouble achieving the values they are legally required to meet. Sand-Cycle solves that, because the process is easily monitored.”

Also at Innovation Avenue: the relatively young company Bluecon, owned by Jaap Stuver. Bluecon is engaged in compact and decentralized domestic wastewater treatment. “Our innovation is based on

an advanced version of DAF-technology [Dissolved Air Flotation, ed.]”, says Stuver. “The water is purified so that it can be discharged into open water or reused the surrounding area, for example. In addition to the systems, we also offer service, maintenance, and installation.” Bluecon already has extensive contacts in Romania and Turkey and interesting contacts were made during a Dutch trade mission to Italy (more information on this further on in this magazine, ed.), according to the entrepreneur.

Honourable

DMT/Sustec’s Thermal Hydrolysis Process (THP) is also aimed at water purification. With this innovation, DMT offers a combination of hydrolysis and dewatering, particularly for water treatment plants. This reduces the processing cost of sludge (from purified water) and makes transportation easier and cheaper, explains Joost Edens. “The benefits are spectacular and it is proving successful”, says Edens. “We just signed a contract with Doosan-Enpure Ltd. Using our technology, we are going to help Severn Trent Water develop a completely new sludge processing line in Stoke-On-Trent in the UK. This is a major achievement for us.”

Another good example of a special innovation is Solteq Energy’s FreshWaterMill. “We have converted an electric wind turbine into a hydraulic one”, explains entrepreneur Herre Rost van Tonningen. “This allows us to use the incoming wind energy much more efficiently. We combine this with a high-pressure pump and use the pressure as the primary energy for our desalination plant, where we make drinking water from seawater, brackish water, or even wastewater. At the same time, we produce green energy with the leftover energy.”

Space

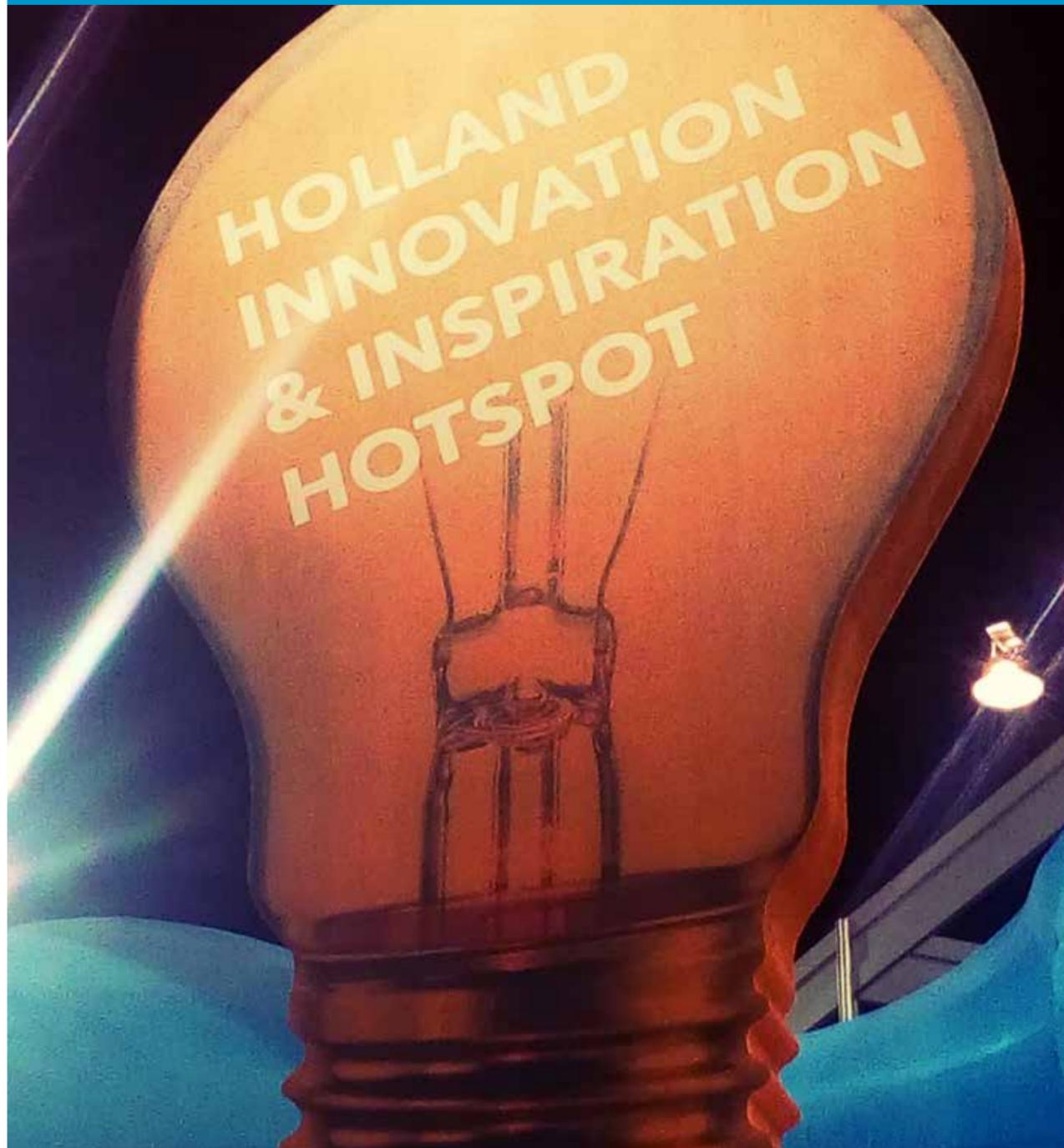
Of course, Wafilin Systems, the brand new winner of the WIS-Award (Water Alliance’s Innovation Award) will also be present. The company is specialized in the development and application of membrane applications for the industry. The applications are very diverse and divergent regarding type of membrane and industries. The company works for the industrial laundry industry for example, where they used ceramic membranes to achieved spectacular reductions in water and energy consumption. They are currently active in the USA, among others, where the first

commercial plant was recently delivered in Las Vegas. But the agricultural industry could also be on the verge of a revolution, as Wafilin is currently running successful tests on thickening milk during milking. These tests are being conducted at the Dairy Campus Leeuwarden (close to the WaterCampus, ed.). “This can decrease the volume of the milk by half”, according to Jos van Daltsen. “That in turn reduces the costs for both the farmer and the dairy factory; e.g. transportation and energy costs.” CEO Henk Schonewille was recently recruited to further develop the company commercially. “It is a matter of commercially utilizing your innovation to its full potential as a business”, says the CEO. “But Wafilin Systems is also sending another message. We want to stay ahead in innovation as well and someone like Harry Daltsen, the founder of our company, still has plenty of ideas for new membrane applications that could lead to commercial success. We have now struck a balance between the long and short term.”

[The Companies on Innovation Avenue a presentation >>>](#)

The Companies on Innovation Avenue

Who are they and what can they do? In short, an overview of the companies' presentations.



Hydraloop International b.v.

developed Hydraloop. Hydraloop cleans and disinfects bath and shower water so that it can be used in toilets, washing machines, and gardens. Hydraloop can recycle over 50% of water, enabling a household to achieve reductions in the use of tap water of over 50%.



AkaNova

develops artificial intelligence for decentralized purification plants. Wastewater contamination levels are determined using sensor and control technology, and the purification process is adjusted energy-efficiently to achieve the required effluent quality. What makes this project innovative is the newly developed SMART operating system that can anticipate the incoming wastewater (freight and quantity).



Aqana

Aqana has a revolutionary technology to convert organic components in industrial wastewater to bio gas. The Aqana DACS technology is the "next generation" of anaerobic technology which overcomes the disadvantages of the first generation anaerobic technology and is therefore widely applicable.



Bluecon

has developed a one-hundred percent physical, compact decentralized unit for the purification of sewage for villages from 1,000 to 10,000 inhabitants.



Biothane/Veolia

is specialized in the development and application of sustainable and profitable technologies to purify industrial wastewater and optimally utilize the present components. An example is the innovative Memthane process, which produces biogas from wastewater while simultaneously performing membrane filtration, resulting in an effluent free of floating dust and, in many cases, making aerobic post-treatment unnecessary, or even allowing immediate reprocessing for recycling at the factory.

BIOTHANE



'we want to show off the cream of the crop in terms of Dutch water technology'

BW Products

developed Sand Cycle, a technique for improved monitoring of purification processes at water purification plants and drinking water companies.



DMT

will present the TurboTec® Thermal Hydrolysis Process (THP). This allows high-temperature sludge to be 'hydrolized' (for the experts: a steam explosion of a cell structure compound under the absorption of water, ed.) With the Thermal Hydrolysis Process, DMT/Sustec offers water purification companies, in particular, a combination of hydrolysis and dewatering, which significantly reduces the handling costs of sludge and makes transportation easier and cheaper. By placing a TurboTec in front of a digester, the capacity and efficiency of the digester increases, resulting in a 35% increase in the biogas production.



DWP

(Dutch Water Partners): will show a water tower at Aquatech, which can be used for sustainable cleaning of wastewater.



Paques

presents the 'BIOPAQ®ICX'. The company states that the 'BIOPAQ®ICX' allows them to offer a state-of-the-art solution for anaerobic wastewater treatment with great flexibility regarding tank design. The compact system can even be implemented in existing tanks, according to Paques. Due to the high biomass concentration, the reactor can handle high volume loads. The two-stage retention system prevents biomass leakage, and high fluid velocities ensure excellent blending characteristics, making the BIOPAQ®ICX suitable for treating a wide range of industrial wastewater.



PB International

presents an innovative ultrafiltration solution, designed and manufactured to filter the water for small home humidifiers. The HomEvap improves home comfort and provides a healthy indoor climate. The use of ultrafiltration removes the risk of legionella.



Pro Water

Pro Water is a wholesaler of all kinds of instruments (handheld and online) to measure and control practical any parameter in water. At The Innovation Avenue Pro Water presents a sensor for measuring chlorine without a membrane.



Landustrie

the application of a screw turbine to generate energy with hydro power. When river water flows down through the screw turbine, the screw starts to rotate. By using the right drive and adjusting the flow point, the rotating movement can be used to generate energy. This way, the power of water is available 24 hours a day. In addition, the screw turbine can be used as both a generator and a pump.



LevelLog

a smart measuring sensor that can efficiently measure the ever changing water levels in monitoring wells. "Due to its simple commissioning and operation, the clear display of the data, and the universal usability, LevelLog clearly distinguishes itself from the traditional solutions," according to entrepreneur John Klaver. The innovation provides many benefits to groundwater level managers, in particular.



Microlan

presents the BACTcontrol online monitor. The advantage of this BACTcontrol online monitor is that the microbiological water quality is guarded permanently, avoiding the need for a high frequent collection of water samples and tedious microbiological lab analyses which can take days to get a result.



Enkev Group BV

The Enkev Group produces innovative filter materials for the biological treatment of wastewater, for aquaculture and for various other applications. On the Aquatech 2017 we - for the first time - present Labyrinth. Labyrinth is our new High Specific Surface Biological Filter Medium. The open structure that Labyrinth offers (it offers a voidage of plus 95%) provides a strong biological environment that supports a large quantity of attached biomass. This biomass is key for biofiltration in wastewater treatment installations, in aquaculture and in greywater recycling installations.



Solteq

presents the Fresh Water Mill. One mill, which can simultaneously purify water and generate energy, especially in decentralized areas.



Wafilin Systems

presents ceramic nanofiltration for the recovery of water and energy from hot water process flows such as laundry wastewater, CIP-streams from the F&B industry, blanching water from the food processing industry, and condensate streams from industrial evaporation and drying processes.



WaterCampus Water Tech Experience Tour

Up for an inspiring day to top off a visit to International Water Week Amsterdam 2017 and Aquatech? Then the WaterCampus Water Tech Experience Tour is for you. This full-service excursion day takes visitors to numerous innovative water technology projects in the Northern region of the Netherlands.



1 Amsterdam RAI_08:30 AM

The tour begins and ends at the main entrance of the Amsterdam RAI.

Wetsus. Lunch will be served at Business Centre Johannes de Doper, which is also home of the Water Alliance.

water is treated separately, and valuable nutrients recovered.

2 WaterCampus, Leeuwarden_11:00 AM

WaterCampus Leeuwarden is the physical core of the Dutch water technology sector. It increasingly plays a sector-unifying role for the rest of Europe too. The WaterCampus stimulates cooperation between national and international businesses, knowledge institutes and governments on water technology issues and innovations. It creates synergy for world-class innovation, education and entrepreneurship. This strengthens the global position of European water technology businesses. The WaterCampus also offers a unique research infrastructure, and serves as a meeting point for scientists and enterprises from around the world. Your visit will bring you to the various WaterCampus facilities, such as the Water Application Centre and

3 Demo site_01:30 PM

Demo site at the Wetterskip wastewater treatment installation in Leeuwarden

4 'Waterschoon', Sneek_03:00 PM

Decentralized sanitation project 'Waterschoon', Sneek. Wastewater is increasingly seen as a potential source of energy and nutrients instead of just as 'dirty water'. This showcase project is the state of the art in decentralized wastewater treatment solutions. The facility on display is up and running, incorporated into the newly built neighbourhood of Noorderhoek in Sneek. All 220 apartments are connected to this innovative wastewater facility. Each house is equipped with vacuum toilets and kitchen waste grinders which create a blackwater flow, which is digested. Biogas is reused for heating. Grey

5 Blue Energy project_04:30 PM

Sustainable energy production is a huge contemporary challenge. To address it, energy obtained from environmental resources can play an important role. For example, electricity can be produced from an advanced mixing of saltwater and freshwater, in a process called reverse electrodialysis or 'blue energy'. At the Lake IJsselmeer Enclosure Dam ('Afsluitdijk' in Dutch) a large pilot is under way using blue energy technology in real-world conditions. Here, saltwater from the sea (the Wadden sea) is being mixed with freshwater from the lake (the IJsselmeer) to produce sustainable energy. Your visit will take you to the nearby Experience Centre, where you will hear the very latest about blue energy technology and the status of the project.



Connecting Global Water Tech Hubs

Worldwide, the water technology sector is increasingly organized in hubs. These hubs will be joined together during the European Water Tech Week Leeuwarden (EWTW 2018), 24-27 September 2018 in Leeuwarden. The city of Leeuwarden is a United Nations Innovating City for water technology and will in 2018 also be European Capital of Culture. So it will be no surprise that the international water technology sector is coming together in Leeuwarden that year.

Innovation, technology and policy leaders from private companies, universities and governments are expected to meet and mingle, inspiring each and all during a series of events. Locations: City theatre 'De Harmonie' and WTC Leeuwarden. The 2018 Wetsus Congress, Water Alliance's WaterLink event and an innovation trade show will all be part of the program.

Around these events an array of unique cultural activities is being planned. These are linked to the festivities in the context of Leeuwarden, European Capital of Culture 2018.

During EWTW 2018 the central question will be how multidisciplinary

collaboration can be harnessed to contribute to solutions for global water challenges. Water scarcity, water pollution and water & health are a few of the key topics on the agenda. The water sector's contribution to the circular economy is another subject to be addressed. Keynote speakers from around the world will share visions on these topics from the perspective of science, business and politics. In interactive sessions, and on the exhibition floor, these topics will be further explored and opportunities for innovation and business discussed. In short: a week not to be missed for those in and connected to the water technology sector.

For the program and further updates, see www.watercampus.nl



The Challenge-Response Workshop

Water is an essential raw material for production processes in the global energy sector. At the same time, the water sector needs energy too, among other things, for water treatment and distribution. That mutual dependence is sometimes referred to in international circles as the 'Energy-Water Nexus'. In Europe, Energy in Water (EnW) is a strategic partnership that brings together European small and medium-sized enterprises (SMEs) seeking to collaborate for innovation in these areas.



The IJssel river meanders through the Dutch landscape
Image: Beeldbank RWS/Joop van Houdt

"We've already gained a lot of experience in a variety of projects", says Morten Kildahl-Sorensen, whose organization, CLEAN (Copenhagen), has a catalyst role in EnW. "And we've noticed that the framework we offer SMEs provides an excellent opportunity for collaboration on new projects." The Dane is also responsible for organizing the Challenge-Response Workshop, which will be held during Aquatech. We asked him about the whats and whys.

The Challenge-Response Workshop: What exactly is it?

The Rhine and IJssel Waterboard - responsible for water management throughout much of the Eastern Netherlands - issued a challenge to companies. It asked them to

come up with ideas and solutions to improve the sustainability of production processes, while increasing efficiency at the same time. Their solutions will be presented and discussed at the workshop.

Energy in Water (EnW) is a European Strategic Cluster Partnership. How did you get involved?

The EU is eager to get European SMEs working together more, the goal being to strengthen one another, share knowledge and also to capitalize on business opportunities outside of the EU. CLEAN was involved in that from the early days. Because of my experience at the Danish Ministry of Foreign Affairs, under the CLEAN banner I became involved in the cluster that started 'European Strategic Cluster Partnerships - Going International' (ESCP-4i). The objective was to develop a joint international strategy that would enable European SMEs to better utilize their potential, to improve their competitive power and also to grasp the business opportunities in the world, especially in emerging markets. The Challenge-Response Workshop is a means to transform that strategy into concrete actions.



Morten Kildahl-Sorensen

Now all of you work for a Dutch water company. What has been your impression of the Dutch water technology sector?

My impression is that both the water supply companies and the water technology companies play a leading role, both in industrial wastewater treatment and in the field of knowledge and consultancy. In many parts of the world there is a growing demand for energy efficient, sustainable solutions. That means it will be crucial - for Dutch companies too - to continue investing in partnership and innovation. So it's important to look beyond the border, so that you get more experience and add more international model projects to your portfolio, for those who want to stay ahead of the curve."

CLEAN is partner of Water Alliance in the Horizon2020 EnergyinWater project funded under the European Strategic Partnership Programm.

Energy in Water

International dialogue and networking

The International Dialogue is focusing on generating an international dialogue and cooperative activities for the responsible development and use of emerging technologies across the water-energy Nexus. Cluster organisations working in the Energy in Water Cluster Partnership will pitch their services and networking opportunities for European SMEs and knowledge institutes. All SMEs and knowledge institutes are welcome to join the International Dialogue and to benefit from the Energy in Water network.

November 1st 2017, 15:00 - 17:00 Holland Pavillion booth 07.430/07.520
www.energyinwater.eu | www.wateralliance.nl



‘What happened inside a system was a black box’

Let us turn back time for a minute. Two years to be precise. At Aquatech 2015 in Amsterdam, Vitens, the largest drinking water company in the Netherlands, presents an innovative system of sensors, enabling all kinds of measurements to be carried out directly in the water pipeline network. The system is called ‘Friesland Live!’ and now, two years later, it is almost complete. Time for us at WaterProof to make an appointment with Eric van der Kooij, projectmanager at Vitens.

According to the plans, the project should be nearing completion. How are things going?

“At this point, the system is already up and running, so to speak. We are currently installing the final sensors and we are fine tuning a lot. This involves moving sensors to better locations or doing quality measurements. The constant development of the project fits well with the innovative character of Friesland Live! We are truly the first in the world to conduct measurements in pipes on this scale. Everything about it is new.”

You have placed a total of 305 sensors in 9000 kilometres of pipeline. That is one sensor per every 30 kilometres. Is that enough?

“That is not how you should see it. The pipeline network is divided in so-called DMAs, or District Metered Areas. These are subbalance areas in which we measure the pressure, flow, and water temperature at strategic points with multiple sensors. In addition we measure any water quality imbalances at 80 locations in real time. There are also four different types of sensors in place, so not all 305 are the same. Using this network of sensors we are able to perform leakage detection and water quality monitoring in real time and where necessary we can inform the customer proactively.”

If, for example, there is a leak in a pipeline somewhere outside the test area, could this have been prevented by the system?

“It is still too early days to answer that. The difference between conventional systems and this one is that we can inform the customer sooner. With the older systems you have to trust on alert residents who find a leak to report it. Using the pressure and flow sensors, we can now measure when the pressure or flow of the water deviates from the regular values. If that is the case, it could indicate a leak. With this information we can respond quickly and inform people in that area.”

We read that you also work with Acquaint’s inspection robot. Doesn’t that compete with this system?

“No, it certainly doesn’t. They complement each other very well. Acquaint’s inspection robot is being jointly developed within the sector and can be used to determine the condition of pipelines. The Friesland Live sensors allow us to measure the entire network and interpret what is going on in our pipelines.”

Why the first phase in Friesland?

“A couple years back we started the VIP (Vitens innovation Playground) in Friesland and the province has a nice and clear network of pipelines with a small number of large production locations. We work in close cooperation with the province and the councils here.”

Are you always this innovative?

“Yes, in Leeuwarden we have the Vitens innovation Playground. Literally a playground for testing new technology. Friesland Live is part of that.”

Where do you expect this project to be in two years time?

“We used to only know what went in the pipelines and what came out. What happened within the system was much like a black box. Now we know what goes on inside and we can precisely measure the pressure, flow, and temperature. As a result, our work may become more sustainable because the pressure might be too high in some places. During the coming two years we will be intensively testing and evaluating the system. After which we might expand to the entire Vitens’ network.”

What now?

“We will present the first results and findings on 2 November at the Smart Water for Europe symposium in the RAI (location for Aquatech Amsterdam, ed.) during Aquatech Amsterdam. We have already decided that this is the future. This is going to happen, internationally too.”

About Vitens

Vitens is the largest drinking water company in The Netherlands. The company delivers top quality drinking water to 5.6 million people and companies in the provinces Flevoland, Fryslân, Gelderland, Utrecht and Overijssel and some municipalities in Drenthe and Noord-Holland. Annually Vitens delivers 350 million m³ water with 1,400 employees, 100 water treatment works and 49,000 kilometres of water mains.



www.vitens.nl



THE WATER TECHNOLOGY INNOVATION CHAIN

The WaterCampus brings together a complete chain of innovation for water technology, from first idea, research, specialized laboratories, various demo-sites, launching customers to commercial international applications by commercial companies. Indeed from knowledge to business. It is driven by the idea that technological development and innovation is needed to develop new markets and create new business opportunities.



Waterboard De Dommel, H2MOTION and Aquacolor Sensors unite

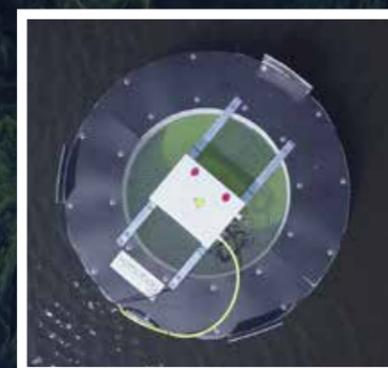
Alliance in the fight against Cyanobacteria

An exciting occurrence in water technology took place in Vught (southern Netherlands) in May this year. H2MOTION and Aquacolor Sensors, both Water Alliance members, launched a Vortex 2.0 with a special sensor attached which measures the concentration of Cyanobacteria in water. It is the first time that the two Water Alliance members worked together and tested the device on this scale. Everything took place in close collaboration with Waterboard De Dommel (named after a Dutch river), which has been testing innovative and sustainable methods to fight Cyanobacteria on a broader scale for a long time.

The vortex generator was tested in a lake near the Nieuw Annaland congress centre in Vught. "Children wanted to swim in this lake last year", says André van den Broek, owner of the congress centre. "Waterschap De Dommel ran some tests, and it turned out that the water contained fifty times the standard amount of Cyanobacteria. Not really ideal water for swimming. I got in touch with Joost Jacobi from H2MOTION through the regional water authorities, who have been researching sustainable Cyanobacteria prevention for a while now. He was looking for somewhere to test his Vortex 2.0. The regional water authorities were willing to facilitate and finance a pilot and I was looking for a solution for Cyanobacteria. That is how our collaboration started." Jacobi adds: "It is primarily due to the expertise of the regional water authorities that we were able to organize this experimental design. They not only took care of the funding, but the monitoring and analysis of all data as well."

Damage

Many readers will likely be aware of the fact that Cyanobacteria can be harmful to people's health (see margin, ed). Cyanobacteria fare well in warm and stagnant water, so that is where the focus lies in the fight against it. The same goes for the Vortex 2.0. The device is a large green funnel. Water flows in from the top, passing through a specially designed fan, after which it is flung out in a spiral at the bottom. This creates a vortex. "Cyanobacteria like stagnant water. The vortex, commonly known as a whirlpool, creates movement", explains Jacobi. "The movement causes the warm surface water to mix with the colder water further down, allowing fewer warm locations where the Cyanobacteria flourish. This causes a decline in



bacteria growth and generally improves the aquatic environment."

Besides collaborating with Waterschap De Dommel, Jacobi also worked closely with entrepreneurs Mateo Mayer and Frank Akkerman from Aquacolor Sensors. They provided the sensor installed on the Vortex. "Using green, red, and blue led lights, the Aquacolor Sensor measures the concentration of Cyanobacteria in the water", explains Mayer. "For example, Cyanobacteria is green because it does not absorb green light. Therefore, if the sensor measures no green light being absorbed, the water contains a lot of Cyanobacteria. In addition, we continuously measure the oxygen content in the water and the temperature of the water. This gives us information regarding the water quality."

Partnership

Jacobi and Mayer knew each other before they started working together, as both their companies have ties to WaterCampus Leeuwarden. Jacobi: "We are both members of Wetsus and know each other through the Water Alliance network." Mayer: "We both deliberately seek this type of collaboration. Instead of selling our sensor as a stand-alone product, we prefer to integrate it in other innovations to make them even better. The data can now be easily viewed on your laptop or smartphone."

A wooden barrage has been installed in the middle of the lake so that one half of the lake serves as a control group. The regional water authorities also monitor the lake on a weekly basis, according to Maarten van Schijndel, Water Systems Advisor at De Dommel. "This way, in addition to comparing the two halves of the lake, we can also compare the results to other locations in our region affected by Cyanobacteria."

Anyone witnessing the device in operation might wonder about the consequences it could have on all the other life in the lake. But according to Jacobi, there is no need for concern. "There is no danger to fish and other animals. The inlet of the Vortex 2.0 is covered with 8 x 8 mm mesh. This stops most aquatic fauna from going through. Besides, most animals tend to swim away from something like the generator. Any tiny creatures that do fit through and accidentally slip through are very likely to survive. We will be monitoring this as well."

At the time of this magazine going to print, it was too early to report any conclusive results, but the first signs

were positive. "It is the first time we have tested on this scale", explains Jacobi. "Previous tests mainly took place in the lab and in a test pond in Tilburg [southern Netherlands] on a small scale last year. The improved Vortex 2.0 edition is still very experimental for us."

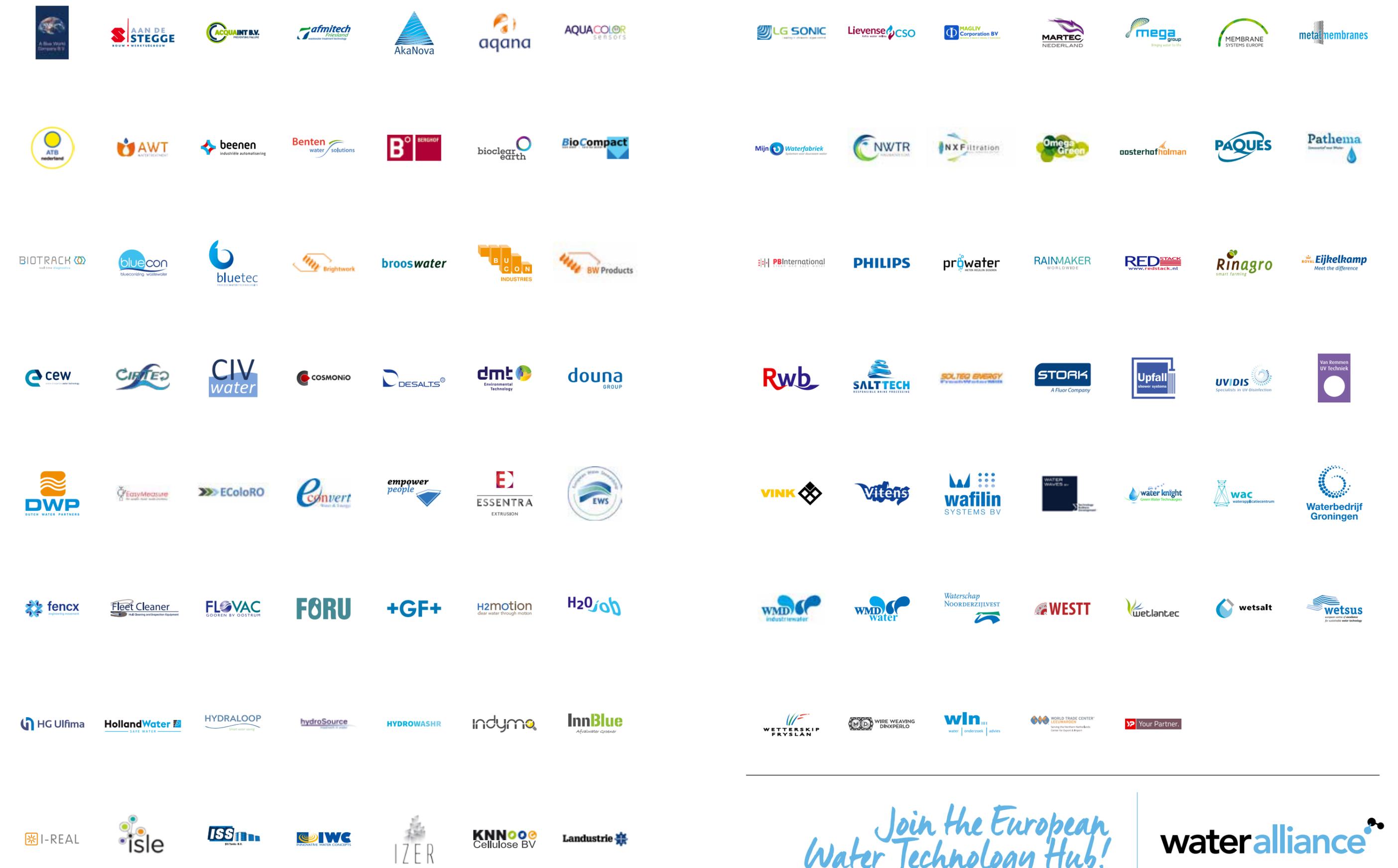
Editor's note: For an update on this test and the results, check future issues or go to www.wateralliance.nl

How does Cyanobacteria develop?

Cyanobacteria mainly develop at higher temperatures in Spring and Summer and in stagnant water, such as in large ponds in residential areas and swimming holes. Contact with surface water containing Cyanobacteria can lead to skin irritation, such as itchiness and red spots. If people or animals ingest contaminated water orally, it may cause gastrointestinal complaints. Sensitivity to Cyanobacteria varies widely among humans. It is also advisable to not allow dogs to swim in water contaminated with Cyanobacteria.



Frank (left), Mateo and Joost



Join the European
Water Technology Hub!

wateralliance

wateralliance

your partner in business at

WATER
CAMPUS
Leeuwarden

WATER ALLIANCE

Agora 4

8934 CJ Leeuwarden

The Netherlands

E-mail: info@wateralliance.nl

Tel. +31 58 284 90 44

www.wateralliance.nl

WATER
CAMPUS
Leeuwarden



www.watercampus.nl



Ministerie van Economische Zaken



provinsje fryslân
provincie fryslân

provincie Drenthe

