Colubris Connects

#3



Turning wastewater sludge to bioplastics

The PHA2USE project brings it one step closer

‘Smart dosing starts with good collaboration’

The shared ambitions of Grundfos and Colubris

Water under control, room to grow

Fleischhof Raabtal and Colubris shape the future together

COLUBRIS

Colophon

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Foreword



The world around us is changing rapidly. Raw materials are becoming scarcer, water resources are under increasing pressure, and legislation and regulations are presenting businesses with new challenges. Yet it is precisely in this changing world that we see plenty of opportunities to move forward together.

In this third edition of Colubris Connects, we show how we put this into practice. Together with customers, partners and colleagues, we develop solutions that enable water reuse, recover valuable resources and make processes smarter and more efficient. Our focus is not only on the technology available today, but above all on what will be needed tomorrow.

What connects all these stories is collaboration. Because real progress does not come from a good idea or innovative technology alone. It comes from sharing knowledge, listening to one another and working together to find solutions that make a real difference in practice.

Throughout it all, we remain true to what Colubris stands for: combining technical expertise with personal attention, taking responsibility and delivering results.

Enjoy your read,

Frank Tillmann | CEO





Water under control, room to grow

Fleischhof Raabtal and Colubris shape the future together

A production environment that never stops calls for flexible wastewater treatment. By expanding its production capacity, using a temporary rental unit during the upgrade, and building on more than thirty years of cooperation with Colubris, Fleischhof Raabtal is investing in continuity, direct control over its wastewater treatment, and a circular future.

At Fleischhof Raabtal, an independent meat processing company in Austria, wastewater treatment is closely connected to the rest of the operation. Meat processing continues every day. That makes careful planning essential when expanding the plant: the new system must handle greater capacity without interrupting production.

René Rauch, who is responsible for technical maintenance at Fleischhof Raabtal: “When you replace an existing plant with a new one, you are always under time pressure. It takes perfect timing and close coordination among everyone involved, because production simply continues in the background.”

In recent years, parts of the wastewater treatment plant have been refurbished and replaced in stages. The reasons were clear: a need for more capacity, components that had to be replaced, and increasingly stringent discharge limits. The proposed solutions had to be technically sound and practical to implement.

During the most recent upgrade, Colubris provided a temporary rental unit. Rauch says: “The rental unit worked extremely well. It allowed us to run both plants in parallel and make the switch only when we were confident that the new wastewater treatment system was operating smoothly.”

Keeping control of wastewater treatment

Over more than thirty years, the plant has developed into a complete treatment line. Rauch describes it as “the full package needed to treat our wastewater. From complete pretreatment through the flocculator and flotation to the aeration tanks, aeration, and sludge flotation.”

The expansion is therefore about more than processing larger volumes. It is also about maintaining control over wastewater treatment. Rauch emphasizes: “It is important to us that we continue to meet all discharge limits, even at higher capacity.”

Technology grounded in real operations

The relationship began with Schneider, a company that later became part of today’s Colubris. That shared history matters, but what ultimately counts is what the partnership delivers in practice: technical expertise, suitable solutions, and a plant that works reliably.



“The rental unit gave us the confidence to switch over only once everything was running properly.”

René Rauch | Fleischhof Raabtal

FLEISCHHOF RAABTAL

According to Rauch, the fact that both companies began as family businesses is most evident in how they work and communicate: “Decisions are made quickly. You can speak directly to the person you need. There is simply less bureaucracy.”

For Rauch, that is crucial, especially in technical projects that require continuous coordination between production, planning, and wastewater treatment. Rauch says: “We are always working toward the same goal. Colubris and we want the same thing: a reliable plant that works well. Ultimately, that is what matters most. I can therefore recommend Colubris without reservation.”

Looking ahead as well as treating wastewater

For Fleischhof Raabtal, wastewater treatment is part of a broader aim to use resources more intelligently. Water, energy, heat, and cooling are closely linked to daily production. The company therefore looks beyond what can be discharged at the end of the process to consider which resources can be used again.

Rauch sees the value of the partnership particularly in this sustainable development: “Colubris really sets an example for us. The technical innovations, the wide variety of systems, and, ultimately, the result: a plant that works well.”







The company is currently exploring applications for treated water and ways to process residual streams further. It is also assessing the possibility of generating energy with a biogas plant. Rauch connects this approach to the “From Nose to Tail” principle: making the fullest possible use of the animal, from food and cosmetics to animal feed and energy generation.

A shared mindset

Rauch sums up both the cooperation with Colubris and his own way of working with his personal motto: “There is no such thing as ‘it can’t be done.’” In practice, this does not mean every solution is straightforward. It means discussing technical challenges openly and tackling them together.

With a wastewater treatment plant that can grow alongside the business, greater scope to treat wastewater on site, and direct communication with a trusted technical partner, Fleischhof Raabtal is laying a solid foundation for its next step. This will help it meet today’s requirements and prepare for tomorrow’s challenges.



From left to right: Mr Kern, Mr Prafl, Mr Webbink (Colubris), Mr Rauch and Mr Kaufmann.

“Colubris and we want the same thing: a reliable plant that works well.”

René Rauch | Fleischhof Raabtal

About Fleischhof Raabtal

Fleischhof Raabtal is an independent, family-owned meat processing company based in Kirchberg an der Raab, Austria. Since 1994, it has processed pigs and cattle with particular attention to regional sourcing, quality, and careful processing. The company holds the AMA quality seal and the “Steirisches Vulkanlandschwein” quality seal.

Fleischhof Raabtal also uses sustainable solutions in its own operations, including biomass for process heat, solar panels, and its own wastewater treatment plant.

For more information, visit fleischhof-raabtal.at.

FLEISCHHOF RAABTAL



What does NEXUS mean?
The name NEXUS comes from the Latin word nectere, meaning ‘to connect’.

Visit the NEXUS!
Connection in practice

Want to experience the NEXUS for yourself? Schedule a visit by calling +31 543 221 221 or emailing marketing@colubriscleantech.com.

In Colubris Connects 2, we already introduced the NEXUS. Since then, the doors have opened and the space has become exactly what it was designed to be: a place where people, knowledge and technology come together.

Over the past period, we have already had the pleasure of welcoming numerous customers and business partners. At the NEXUS, they can not only see our solutions, but experience them as well. From pilot units and R&D test setups to discussions about specific challenges and new opportunities. The NEXUS provides an inspiring environment for sharing knowledge, exchanging ideas and looking ahead together. A place where technical expertise and practical experience come together, creating new ideas and opportunities for collaboration.













Do you feel at home in technology?

Working at Colubris means contributing to projects that make an impact worldwide. But no matter how international or technically challenging our work may be, what matters most to us is that you feel at home here.

We are a technical company where colleagues are there for one another. Whether you are welding in the workshop, engineering a wastewater treatment plant, or managing a major project in South America as a Project Manager, you are part of one team with a shared ambition: using technology to help create a circular world.

At Colubris, you are given the freedom to grow, take responsibility and contribute to solutions that truly matter. We value clear communication, short lines and a down-to-earth approach. No unnecessary fuss, just working together on smart, sustainable technology.

Care and attention for you. That is Colubris.
Would you like to work in a growing market where we develop innovative solutions to global challenges? Visit colubriscleantech.com or scan the QR code to see our current vacancies.

Turning wastewater sludge to bioplastics

PHA2USE brings the production of bioplastics from sewage sludge one step closer



The pilot installation for sludge acidification



The Nieuwveer sewage treatment plant in Breda, the Netherlands

What if sewage sludge could form the basis for sustainable bioplastics? That is precisely the ambition behind PHA2USE, an innovative collaboration between Dutch water authorities, technology partners and industry aimed at creating new value from wastewater streams.

As part of this project, Colubris, in close collaboration with Brabantse Delta Water Authority, developed a pilot installation for sludge acidification. The pilot is currently operating at the Nieuwveer sewage treatment plant in Breda and is demonstrating how sewage sludge can be transformed into fatty acids, a crucial step towards the production of PHA biopolymers.

For Bart Joosse, Senior Water Chain Technologist at Brabantse Delta Water Authority, the project represents much more than technological innovation alone. It is about creating a circular future for wastewater treatment.

From sludge to valuable resources

‘Everything people flush away or discharge into the sewer ultimately ends up in the sludge,’ Joosse explains. ‘Part of it is broken down during treatment, but a significant share of the organic material remains. What we are doing here is converting that sludge into fatty acids. Those fatty acids can then be used to produce PHAs, a biodegradable biopolymer.’

The concept builds on years of previous research. In earlier phases of the PHA2USE project, the focus was on converting fatty acids into PHA, including at a pilot plant in Dordrecht. Various waste streams were tested there, including sludge and industrial residual streams.

‘We already understand the step from fatty acids to PHA quite well,’ says Joosse. ‘The challenge now lies in optimising the preceding step: efficiently producing fatty acids from sewage sludge.’

Scaling up laboratory research to real-world practice

According to Joosse, earlier laboratory tests showed major differences in fatty-acid yields between different types of sludge and wastewater treatment plants. This made long-term testing at pilot scale essential.

‘You cannot base a multi-million-euro installation on the results of a one-litre laboratory test,’ he explains. ‘That is why this project focuses on testing at a larger scale and over a longer period. We want to understand the influence of seasons, rainfall, sludge composition and operating conditions.’

To enable this next phase, Colubris reused two existing 3.5 m³ digestion reactors that had previously been used in a thermal hydrolysis pilot. By optimising the installation and adapting it for sludge acidification, the pilot could be realised efficiently and fully in line with the project’s circular ambitions. The pilot will operate in Breda for six months before moving to the sewage treatment plant in Eindhoven, another place in the Netherlands, where the fatty acids produced will be used as feedstock for PHA production.

A circular alternative to fossil-based plastics

For the water authorities, the project is not only about innovation, but also about sustainability and resource recovery. ‘At present, we mainly digest sludge to produce biogas,’ says Joosse. ‘That is valuable because it generates sustainable energy and heat. Here in Breda, we supply heat to hundreds of homes. However, converting sludge into biopolymers creates a significantly higher-value product while supporting the transition to a circular economy’

The environmental benefits extend beyond resource recovery. Unlike conventional fossil-based plastics, PHA is fully biodegradable and does not contribute to microplastic pollution. ‘That is one of the main reasons why we see so much value in this technology,’ Joosse explains. ‘If bioplastics such as PHA can replace even a portion of conventional plastics, we can ultimately also reduce the amount of microplastics in the environment.’

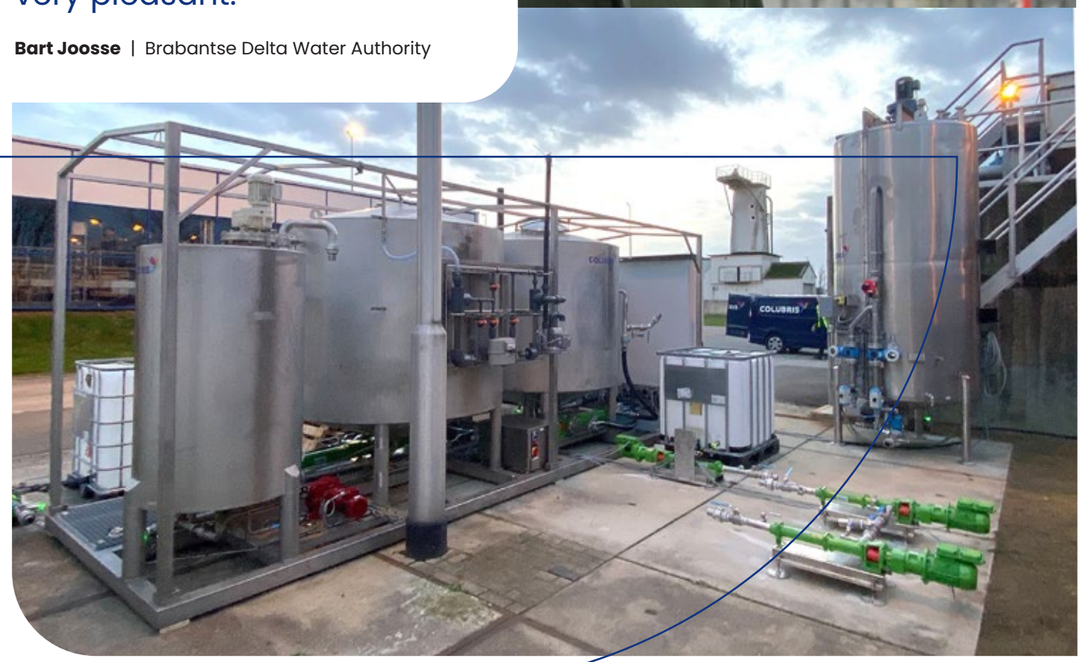
Photos | Colubris and Brabantse Delta Water Authority



Bart Joosse
Senior Water Cycle Technologist
at Brabantse Delta Water Authority

"Short lines of communication and a practical, solution-oriented approach make working with Colubris very pleasant."

Bart Joosse | Brabantse Delta Water Authority





Collaboration based on flexibility and short communication lines

For Colubris, the pilot fits perfectly with the growing focus on innovative technologies for wastewater and sludge processing in municipal applications. Throughout the project, close collaboration between all partners has once again proved essential.

'With pilot installations, you always encounter challenges,' says Joosse. 'You may face leaks, blockages or operational adjustments; that is part of the process. What matters is how you solve those challenges together.'

'The collaboration with Colubris is very pleasant thanks to the short lines of communication and the willingness to think along in a highly practical way.' This collaborative way of working has resulted in strong cooperation between the project team, operators and Colubris engineers.

Looking ahead

The coming year will be crucial in determining the technology's future potential. The results of the pilots in Breda and Eindhoven will provide the basis for assessing whether large-scale implementation is technically and economically feasible.

'The key question is whether we can consistently achieve the fatty-acid yields from the sludge,' Joosse explains. 'That will ultimately determine whether we can build a viable business case for large-scale installations in the future.' Even beyond PHA production, the fatty acids produced may offer additional opportunities in wastewater treatment, for example by supporting nitrogen-removal processes.

For Colubris, this project demonstrates how technological innovation, circular thinking and strong partnerships can transform wastewater via practical solutions into valuable and sustainable resources.

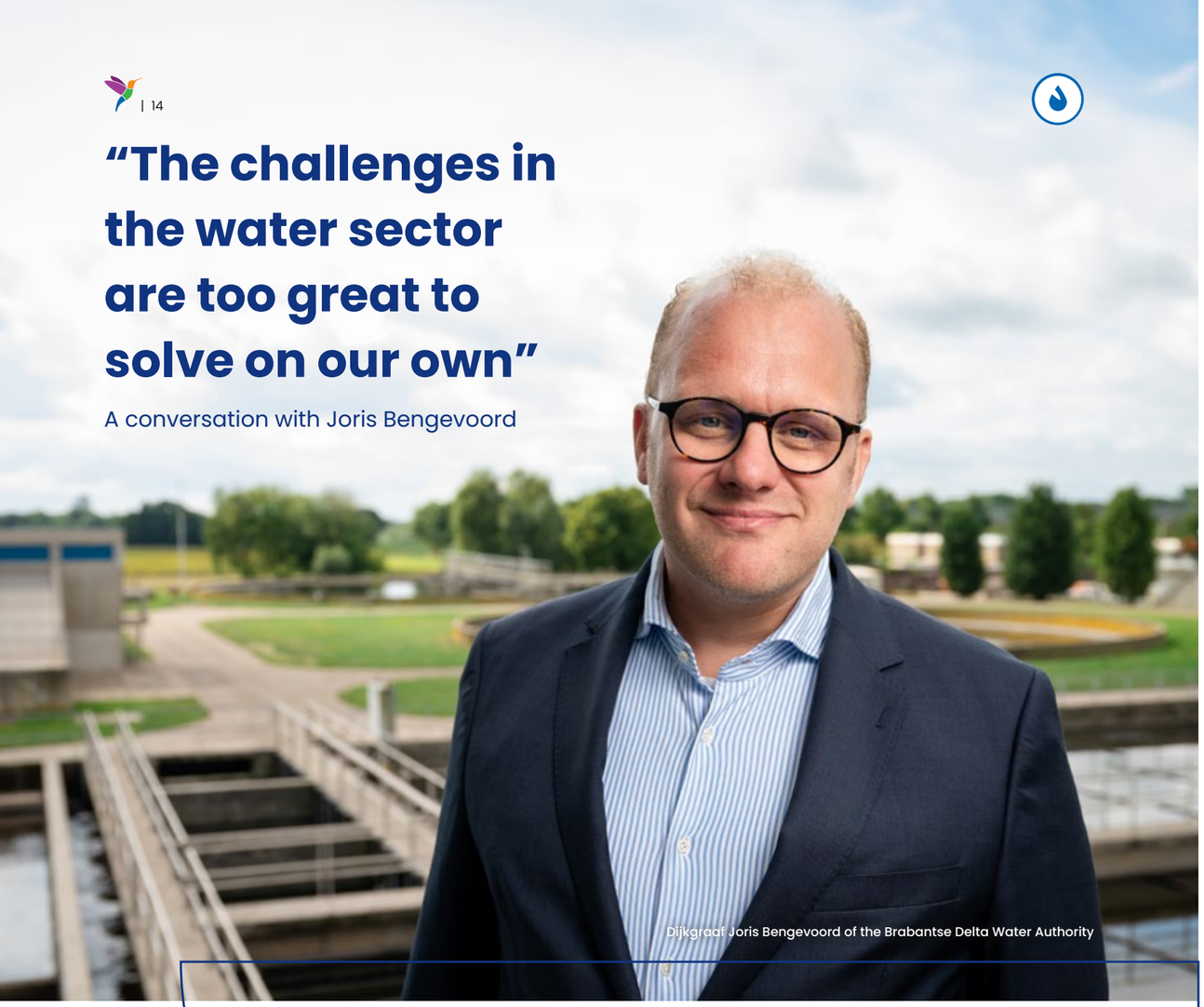
About Brabantse Delta Water Authority

Brabantse Delta Water Authority is responsible for water quality, wastewater treatment and water management in the western part of the province of North Brabant, the Netherlands. The organisation actively invests in circular and sustainable technologies aimed at recovering valuable raw materials from wastewater streams and reducing environmental impact.

For more information, visit brabantsedelta.nl.

“The challenges in the water sector are too great to solve on our own”

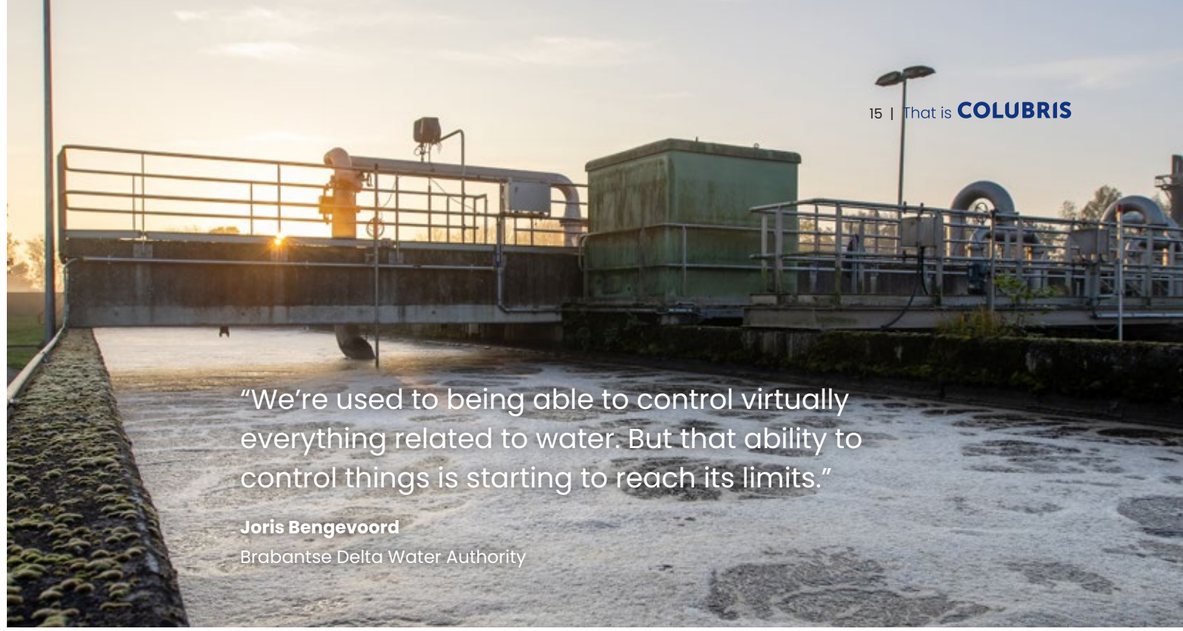
A conversation with Joris Bengevoord



Dijkgraaf Joris Bengevoord of the Brabantse Delta Water Authority

For many Dutch people, water is the most natural thing in the world. But how much of a given is clean and sufficient water, really? According to Joris Bengevoord, Chair of the Brabantse Delta Water Authority, we face major challenges. Climate change, stricter water quality requirements, and aging water treatment plants call for new solutions. In this regard, he sees an important role for innovation and collaboration with the business community.

Photos | Brabantse Delta Water Authority



You work with water every day. Has that changed your perspective on water?
“Absolutely. I’m impressed by how innovative the water sector is, but especially by the impact water has on our daily lives. Everyone takes it for granted that there’s always enough clean water available. But that doesn’t happen on its own. Last summer’s drought made that clear once again. I think we still underestimate the value of water.”

What do you think are the biggest challenges for the next ten to twenty years?
“Climate change is going to have a massive impact. In the Netherlands, we’re used to being able to control virtually everything related to water. But that ability to shape things is starting to reach its limits. As water managers, we can no longer solve every problem for everyone. That means we have to make choices together, even if they aren’t always popular. In addition, we need to invest heavily in our wastewater treatment plants. Many facilities are now about fifty years old and in need of replacement. Moreover, today’s wastewater is very different from what it was fifty years ago. Water quality, water availability, and climate adaptation can therefore no longer be viewed in isolation from one another.”

Is there a risk of water congestion, just as there is with energy? Or can we already speak of that?
“I hope we can prevent that. But we’re already seeing that some companies are no longer being granted new water connections. So we’re on the verge of a serious problem. That’s why we need to take major steps now.

An important opportunity lies in water reuse. Here in the region, for example, we have the Klaterwater project, in which treated process water from Coca-Cola is used at the Efteling. As a result, less drinking water needs to be used there. Initiatives like this show what’s possible when stakeholders work together.’

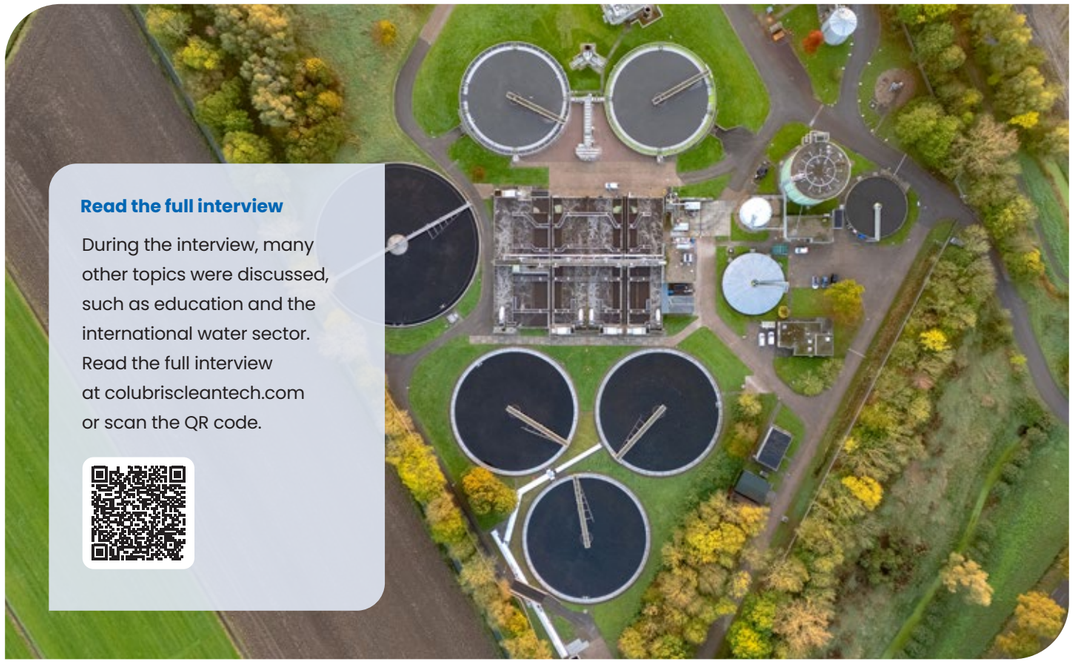
There's a lot of innovation happening in the water sector. Is the biggest challenge still in developing technology, or rather in applying it?
"I think it's mainly about scaling up. A lot of great things are happening, but often still on too small a scale. As water districts, we can no longer afford to all be reinventing the wheel on our own.

We need real breakthroughs. You achieve those by pooling knowledge, trusting one another, and creating scale together. Legislation can also sometimes be an obstacle. We need to figure out how to put innovative solutions into practice more quickly. In my role as portfolio holder for International Affairs, Innovation, and Education at the Union of Water Authorities, I hope to contribute to that."

What role do you see for companies like Colubris in this?
"The challenges facing water authorities are simply too great to solve on their own. We desperately need the knowledge and innovative strength of companies. Water authorities provide social value, while companies, of course, also have a commercial interest. Those two don't have to get in each other's way at all."

> "In addition to purifying water, we want to recover as many valuable substances as possible and reuse them."
>
> **Joris Bengevoord**
> Brabantse Delta Water Authority





Read the full interview

During the interview, many other topics were discussed, such as education and the international water sector. Read the full interview at colubriscleantech.com or scan the QR code.

"We need to find common ground based on a shared societal challenge. By collaborating more closely, opportunities arise to further develop innovations and actually apply them on a larger scale."

Is wastewater increasingly viewed as a source of valuable raw materials?
"Absolutely. We always say here that our treatment plants are also raw material factories. In addition to treating water, we want to recover and reuse as many valuable substances as possible. Think of phosphates, metals, and raw materials for bioplastics.

Circularity is a key principle for us. The innovation projects we're carrying out in collaboration with companies like Colubris also contribute to this. We shouldn't just focus on what we remove from the water, but especially on what else we can do with it.'

When we look back in ten years, what do you hope we will have achieved?
"I hope we can say that we've truly taken action. That we've dared to make choices, even when they were difficult. And that we've taken major steps toward a climate-resilient water system and better water quality.

To do that, we need above all to collaborate much more and learn from one another—with confidence in each other's knowledge and capabilities. In the Netherlands, we have incredibly innovative companies and Water Authorities with the will to move forward. If we join forces, we can achieve truly remarkable things."



The PROCAS team for the pilot unit in Vietnam

From cassava to protein powder

PROCAS project enters the next phase

How can you create more value from a raw material that is grown and processed on a large scale worldwide? Within the international PROCAS project, Colubris and its partners are exploring how cassava processing can generate not only starch, but also other valuable product streams.

In Colubris Connects 2, we reported on the initial tests and the development of a pilot installation. Since then, the project has taken an important step forward. In Vietnam, protein powder has now been successfully produced from the cassava process stream.

Promising yield

The initial results confirm what earlier trials had already indicated: cassava offers more value than starch alone. “Following the commissioning of the installation in Vietnam, we were able to start producing protein powder fairly quickly. The yield has proven promising,” says Marijn Zwijsen, Process Engineer at Colubris. This marks an important milestone. While the first phase mainly focused on technical feasibility, the process is now actually creating a new product stream.

“The most important result is that we have demonstrated that we can actually produce protein powder from this stream. The yield is positive, which gives us a great deal of confidence for the next steps. At the same time, we are not there yet. The protein concentration, for example, is one of the areas in which we want to further optimize the process.”

This type of optimization is an inherent part of a development project such as PROCAS. Every practical test provides new insights into the installation, the behavior of the product stream and the different process steps.

> “We have shown that we can produce protein powder. The positive yield gives us confidence for the next steps.”
>
> **Marijn Zwijsen** | Colubris

Full-scale testing

To take the next step, Colubris is currently building an additional skid in Winterswijk, the Netherlands, for full-scale testing. It will be shipped to Vietnam in September 2026. Zwijsen: “This expansion will allow us to test the process over longer periods. One of the main areas of focus will be the membrane stage. By operating the membranes continuously for longer periods, we can gain a better understanding of their performance under real operating conditions and of the factors affecting capacity, concentration and process stability, among other things.”

“In November, I will return to Vietnam to support the next phase of testing. Ultimately, the results should help us make the transition from a successful development project to a process that can also be applied reliably on a larger scale.”



The protein powder produced from the cassava stream



Process Engineer Marijn Zwijsen

PROCAS

Testing, analyzing, improving

The fact that adjustments to the installation are required during a project like this comes as no surprise. Developing a new application requires continuous testing, analyzing and improving.

The Vietnamese project partner also sees this as an integral part of the process. The initial production of protein powder has further strengthened confidence in the technology, and the ambition is clear: to continue developing it as quickly as possible.

This close cooperation is essential. After all, the process is not only being developed from a technical perspective; ultimately, it also has to integrate with an existing cassava processing plant and local production conditions.

A new product stream

Project partner Stamex also plays an important role in this development. The company supplies technology and production lines to the starch processing industry worldwide and sees opportunities to help its customers extract more value from their raw materials in the future.

Where traditional cassava processing primarily focuses on starch production, recovering proteins can create an additional product stream. This enables an existing raw material to be used more efficiently while simultaneously creating new economic value.

For companies such as Stamex, this creates an interesting opportunity: not only to supply installations for producing a primary product, but also to help customers generate value from other streams within their production processes.

More value from the same raw material

And this is precisely where Colubris sees the broader significance of the PROCAS project. Cassava is the starting point of this project, but the knowledge being developed extends beyond a single crop. The processing of other plant-based raw materials also generates liquid and solid streams that may still contain valuable components.

By intelligently combining technologies for separation, membrane filtration, concentration and further processing, these components can potentially be recovered and turned into products once again.

As a result, the question is increasingly shifting from how do we process a residual stream? to what value is still contained in this stream?



The Bioresource Protein Biorefinery Pilot Unit at cassava processor Yenbinh in Vietnam

PROCAS



The hidden value of organic waste streams

Discover our bioresource solutions

Every day, large quantities of nutrient-rich plant-based waste streams are used for low-value purposes or disposed of as waste. At the same time, the food industry is looking for sustainable sources of functional ingredients, proteins, and natural raw materials.

At Colubris, we help companies transform these underutilized plant-based waste streams into valuable dietary fiber, protein, and natural sugar concentrates. By combining smart recovery technologies with practical process knowledge, we create new value from existing raw materials.

The result: less waste and new revenue opportunities. Because what is thrown away today can be a sustainable ingredient tomorrow.

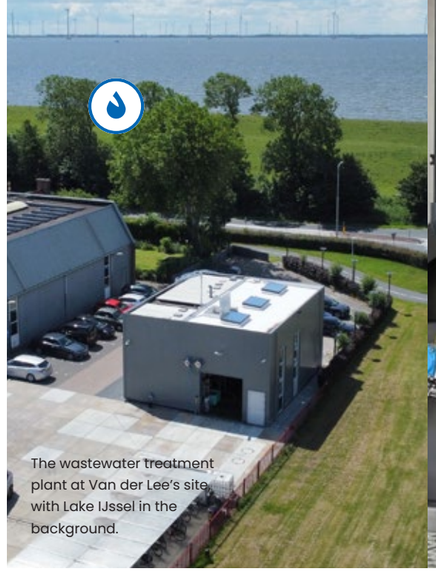
From analysis to implementation

For various types of fruits and vegetables, Colubris has already investigated which valuable raw materials can be recovered and which technologies are suitable for this purpose. Based on this knowledge, a business case can be developed.

For other waste streams, the process begins with research into the composition, recovery possibilities, and economic feasibility.

Colubris guides producers throughout the entire development process: from an initial analysis and laboratory research to pilot testing and the implementation of a full-scale industrial facility.

Curious about the value that may still be present in your product or residual streams? Contact our bioresource experts at info@colubriscleantech.com or +31 0543 221 221.



The wastewater treatment plant at Van der Lee's site with Lake IJssel in the background.



: From left to right: Jan-Willem Woord, Hein Jan van Urk and Jacob Pronk.

Wastewater treatment built for the future

Van der Lee Seafish takes an important step towards sustainable water management

How can industrial companies future-proof their wastewater treatment at a time when water availability, discharge requirements and operational efficiency are becoming increasingly important? Van der Lee Seafish in Urk, The Netherlands, recently took a major step forward by installing a new DAF system from Colubris, including SmartDose, which enables the company to optimize chemical dosing , thereby reducing operational costs and reducing the company's environmental footprint.

The new system replaces a DAF system that had been in operation for almost thirty years. In doing so, Van der Lee Seafish is building on a partnership dating back to the time when Colubris was still known as Redox. This long-standing relationship, combined with Colubris' technical expertise and practical approach, was an important reason for choosing Colubris again.

Thirty years of collaboration

Jan-Willem Woord, who has been working at Van der Lee Seafish for thirty years and is responsible for the water treatment system, speaks enthusiastically about the partnership: "After so many years of experience with both the Colubris system and the people behind it, you know what you can expect from one another. For us, that trust was at least as important as the technology. It provided a strong foundation for replacing and modernising the wastewater treatment system."

Standing out through practical expertise

Other suppliers were also invited to submit proposals for the new system, but Colubris' straightforward and honest approach ultimately made the difference. "With other suppliers, we had men in suits sitting around the table, mainly presenting a commercial sales pitch. Colubris came here, examined our specific situation and immediately told us what we needed and, more importantly, what we did not need. That no-nonsense approach and in-depth expertise are a much better fit with the way we work here", Woord explains.

Investing in future-proof water treatment

Van der Lee Seafish operates in the fish-processing industry, where water plays a crucial role in daily production processes. Reliable wastewater treatment is therefore essential, both for ensuring reliable business operations and for complying with applicable discharge requirements.

Woord explains: "The new DAF system has been designed with greater buffer capacity and a higher level of automation. Whereas the old system had a buffer capacity of approximately 30 m³, the new system has a 200 m³ buffer tank. This ensures a more consistent treatment process and greater operational flexibility. It fits perfectly with the forward-thinking nature of our company. At Van der Lee Seafish, we like to stay ahead of the rest."

> "Colubris came in, assessed our specific situation and immediately told us what we needed, but more importantly, what we didn't need."
>
> **Jan-Willem Woord** | Van der Lee Seafish

Greater control with SmartDose

An important component of the new system is SmartDose, which intelligently and automatically doses chemicals based on real-time measurements taken during the treatment process. This reduces the need for manual checks, avoids overdosing of chemicals, and provides greater insight into and control over the system's performance.

Woord was initially critical of the investment, but now recognises its benefits: "I no longer have to carry buckets of water around and mix polymers myself to see how the flocs are forming. It saves me time. With certain water flows, I used to spend hours trying to find the correct ratios. SmartDose determines them ten times faster than I can."

"And even more importantly, the water quality has improved, which means that we will ultimately pay at least 30 percent less in pollution-unit* charges."

SmartDose therefore contributes to both time savings and lower operating costs. This has not gone unnoticed. Woord says: "Several companies have already visited us to see the system. Their initial scepticism quickly turns into interest once they see how SmartDose works and what benefits it provides in practice."



SmartDose

VAN DER LEE SEAFISH



About Van der Lee Seafish

Van der Lee Seafish is a leading fish company based in Urk, The Netherlands. Since 1973, the company has been active in the processing, distribution and supply of a wide range of fish products. The family-owned company follows sustainable fishing guidelines. By upgrading its water treatment system with Colubris technology, it is also investing in sustainable and future-proof water management.

For more information, visit vanderleeseafish.nl.

Practical collaboration, rapid results

Van der Lee Seafish's in-house technical expertise played an important role during the installation process. Woord explains: "We also carried out a great deal of the work ourselves. That fits the way we operate and ensures that you really get to know the system properly." This combination of in-house implementation and direct support from Colubris allowed the system to be configured quickly and effectively.

Colubris remains involved by providing technical guidance and process expertise, including remote monitoring and the further optimisation of system settings.

Woord has direct lines of communication with the team: "If something comes up, I simply send them a WhatsApp message. They take a look, and we usually have it resolved in no time."

Looking ahead to water reuse

Van der Lee Seafish is also exploring the possibilities for water reuse in collaboration with Vitens, Wageningen University & Research, Waterlab Flevoland, Colubris and several other parties. The aim is to determine which additional steps will be required to reuse treated water in the future.

According to Woord, water availability is increasingly becoming a strategic issue for industry: "Water availability is going to become a serious issue. Just as companies are currently reaching the limits of the electricity grid due to grid congestion, the same will eventually happen with water. You do not want production to come to a standstill because you can no longer use enough water."

The new system provides Van der Lee Seafish with a solid foundation for this development. With greater buffer capacity, improved process stability and better water quality, the company is better prepared to investigate the next steps towards water reuse. "We are not there yet, but this is a very important step towards the future."



"Water availability is going to become a major issue. You don't want your operations to come to a standstill because you can no longer access the water you need."

Jan-Willem Woord | Van der Lee Seafish

What are pollution units?

Pollution units, also known as PUs, are a measure of the amount of pollution a company discharges through its wastewater. In general, the lower this value, the lower the wastewater levya company is required to pay.



‘Smart dosing starts with good collaboration’

The shared ambitions of Grundfos and Colubris in sustainable water management

The collaboration between Grundfos and Colubris goes back decades. What once began with Alldos, which was acquired by Grundfos in 2006, has grown into a lasting relationship between two companies that connect well in the areas of water technology, quality and innovation. For Colubris, Grundfos is an important supplier of, amongst other things, dosing technology, pressure-boosting systems and associated components. But anyone who speaks with Erwin Dongstra of Grundfos and Erwin Geessinck of Colubris quickly notices that their partnership goes beyond products alone.

Erwin Dongstra (left in the photo): ‘Our collaboration with Colubris is constructive, straightforward and based on mutual appreciation.’

GRUNDFOS

“If I had to describe our collaboration, I would call it constructive, clear and based on mutual appreciation,” says Erwin Dongstra, Sales Development Manager at Grundfos. “Communication is direct. You quickly understand what is at stake, even in difficult situations. I value that enormously.”

This way of working fits Colubris well. “We want to build long-term relationships with suppliers,” says Erwin Geessinck, Manager Purchasing & Logistics. “Relationships based on quality, trust and clear agreements. Of course, situations sometimes develop differently than expected. That is when open and honest communication matters: how do you treat one another, and what agreements do you make?”

> “Communication is direct. You quickly understand what is at stake, even in difficult situations. I value that enormously.”
>
> **Erwin Dongstra** | Grundfos

More than dosing pumps

On paper, Grundfos’ role seems straightforward: supplying dosing pumps and components for Colubris installations. In practice, that role is much broader. Grundfos contributes ideas on dosing systems, safety, valves and fittings, product selection and monitoring. Colubris then integrates this technology into complete installations for wastewater treatment and water reuse.

“The dosing pump is an important part of the skid,” says Geessinck. “But for a safe, accurate and reliable installation, it is equally important to look carefully at the valves, fittings and the overall configuration around the pump. That is where you make the difference, and where the real added value of our collaboration lies.”

“Although a dosing system may be only a small physical component within a large water-treatment plant, its impact is significant. If the chemicals are not dosed correctly, the treatment plant comes to a standstill—and so does the customer’s process,” Geessinck explains. “It is one of the gears that keeps everything running. Especially when working with chemicals, it must be safe, reliable and simply work.”

That is why the technology has evolved considerably in recent years. Where simple skids with separate pumps were once used, Colubris now increasingly works with complete dosing cabinets equipped with leak detection, safety features and digital dosing pumps. Grundfos supplies not only the pump, but also the expertise needed to apply it properly and safely.

Sharing knowledge

Knowledge transfer is an important part of the collaboration. Colubris engineers need to be able to respond quickly to technical questions. Grundfos supports them with product knowledge and advice on the right application. This knowledge sharing is increasingly taking shape through online training courses from the Grundfos ECADEMY and webinars, for example, Dongstra recently hosted a webinar on the new Grundfos DDA dosing pump.

There are also plenty of opportunities within the Colubris Academy for training courses and masterclasses on dosing technology, connectivity and new innovations.

“Grundfos is set to make major progress in dosing technology over the coming years. When our engineers are fully familiar with the new developments, they can move faster and the design can be finalized sooner,” says Geessinck. “That makes the collaboration future-proof.”



About Grundfos

Grundfos is a global specialist in pumps and water solutions. The Danish company was founded in 1945 and now employs 21,000 people in more than 60 countries.

For more information, visit grundfos.com.

"Although a dosing system may be only a small physical component within a water-treatment plant, it's impact is significant"

Erwin Geessinck | Colubris

Sustainability as a shared ambition

Sustainability is an important driver for both companies. This is not only about energy-efficient technology, but also about long-term relationships, knowledge development and the responsible use of water and resources. "Colubris and Grundfos meet at the intersection of water reuse, circularity and efficient industrial water management," says Dongstra. "Particularly in complex industrial and agri-food processes, we can work together to reduce energy and chemical consumption while improving process reliability."

Geessinck also sees sustainability reflected in the way Grundfos operates as a supplier. "We take this into account in our supplier evaluations. Grundfos really has it well organized. You see that with very few other companies in this way."

For end users, the collaboration results in reliable installations, greater safety, less downtime and, where possible, lower operating costs. Grundfos' global presence is also valuable, particularly in international projects. Parts and service are available locally, which is important when an installation is operating far from the Netherlands.

Continuing to develop together

The partnership continues to evolve. Digitalisation, monitoring and smart dosing technology offer new opportunities to make processes more transparent and efficient. At the same time, customer needs remain the guiding principle: not every project requires the most extensive solution, but every project does require the solution that fits best. The foundation is already in place: a relationship in which both companies know one another and are willing to challenge each other in order to serve the customer even better. Dongstra summarizes it well: "Together, we solve complex challenges while making a tangible contribution to a cleaner and more sustainable world."

GRUNDFOS

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- Get exclusive updates and first-hand insights directly in your mailbox
- Be inspired by the stories of our customers
- Stay informed about sustainable solutions and developments in the sector
- Never miss an invitation to events, webinars, and trade fairs

Sign up today and discover how Colubris helps you make the world a cleaner and more sustainable place.

Colubris and Colsen join forces in a strategic commercial partnership

Colubris and Colsen have entered into a strategic commercial partnership to strengthen their combined knowledge and technologies. By bringing together the expertise of both companies, new opportunities arise to offer customers worldwide even more comprehensive and sustainable solutions for water and wastewater treatment.

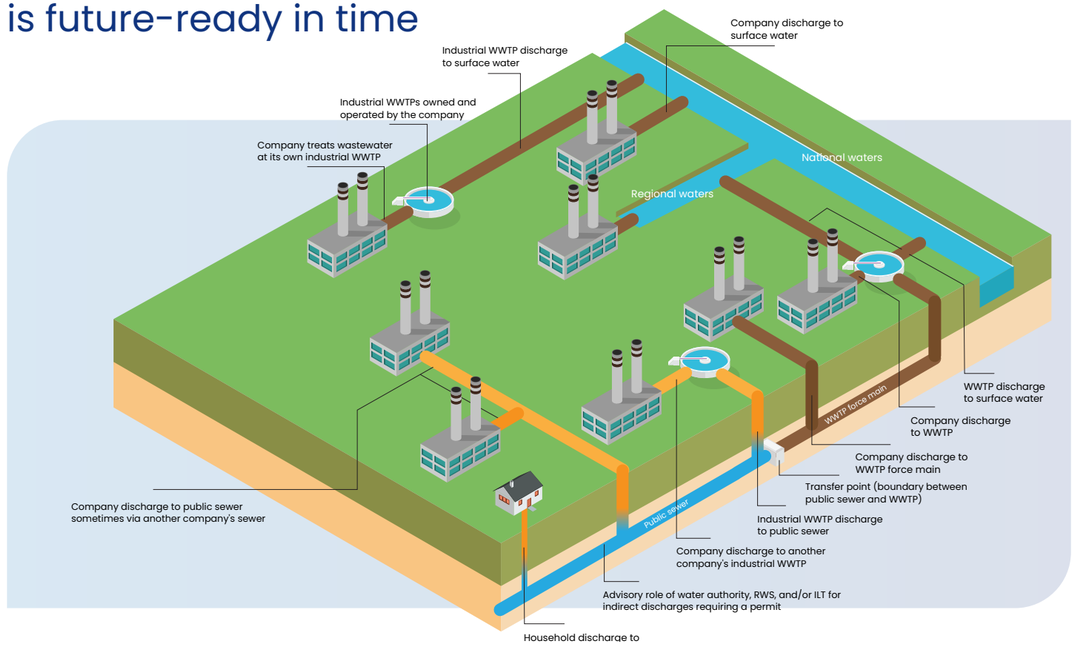
Both companies have been active in water technology for decades and possess extensive knowledge and experience. The partnership creates synergies, particularly in the areas of pretreatment and anaerobic wastewater treatment. By combining their complementary technologies and expertise, Colubris and Colsen can offer their customers a broader range of solutions. It is precisely this complementarity that forms the strength of the partnership. By combining technologies and knowledge, both companies can provide customers with a broader range of solutions and expand into new markets.

Colsen
water, energy & environment

COLUBRIS

Could the Water Framework Directive bring your operations to a standstill?

Make sure your wastewater treatment system is future-ready in time



By the end of December 2027, the water quality objectives of the European Water Framework Directive (WFD) must be achieved. To meet these objectives, increased attention is already being paid to permitting, monitoring and enforcement. Companies that discharge wastewater into the sewer system may also be affected.

Depending on applicable regulations and permit conditions, they may be required to provide information about the substances they discharge and the quality of their treated wastewater. Existing discharge permits are being reassessed and, where necessary, tightened. This may mean that existing wastewater treatment plants will also need to be upgraded.

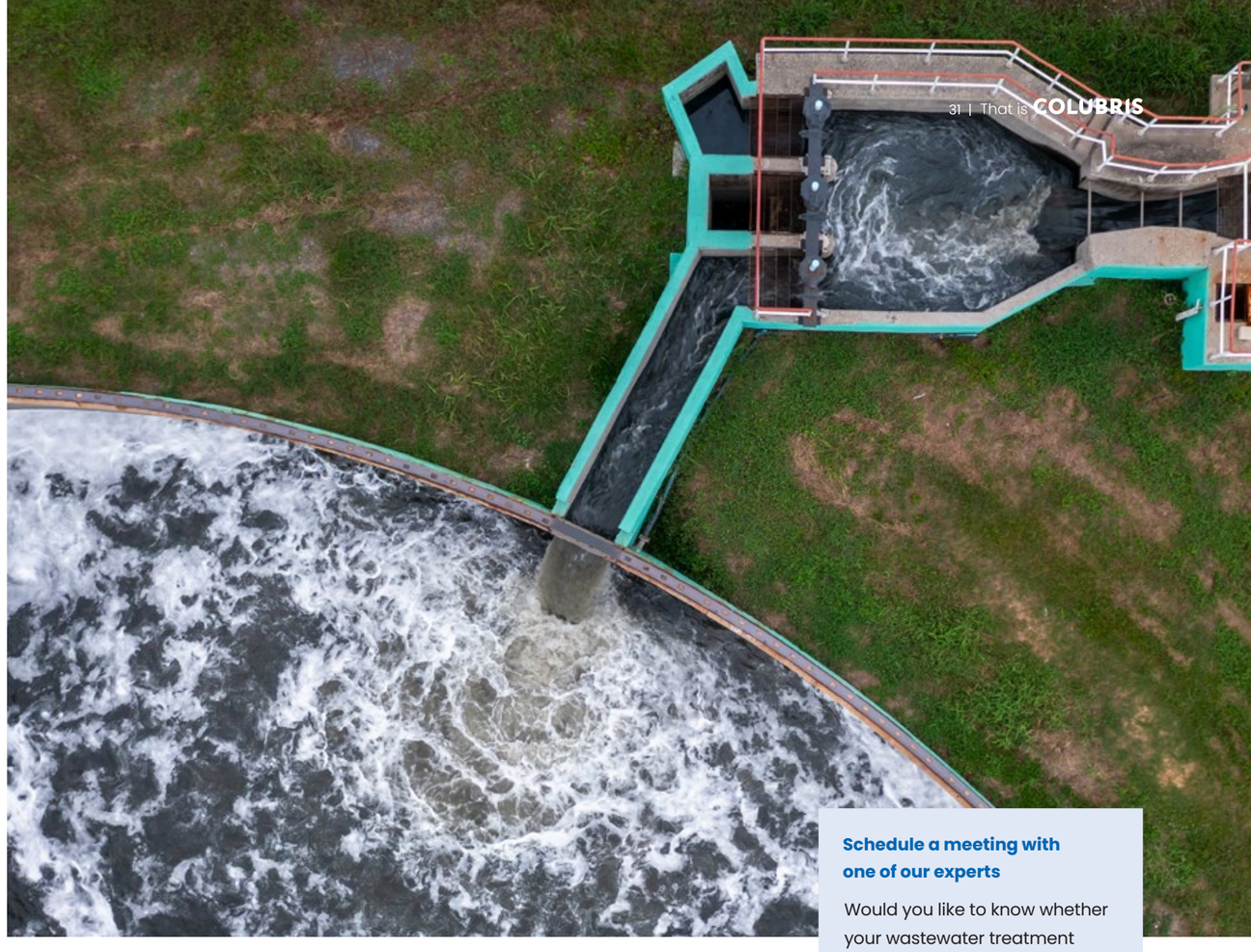
For companies with production processes that depend on water, this could have major consequences. In some cases, production could even be brought to a standstill if a permit is amended, tightened or, in the most extreme case, revoked.

Is your current wastewater treatment system still sufficient?

Many companies in food processing, textiles, petrochemicals and non-food manufacturing have already invested in their own wastewater treatment systems. However, a system that has performed well for many years may no longer be sufficient under changing conditions. This may be due to changes in raw materials, different cleaning agents, higher production volumes, stricter discharge requirements or new insights into harmful substances. Substances that previously received little attention may also become increasingly relevant for permitting, supervision and enforcement. That is why now is the right time to reassess your wastewater treatment system.

Why act now?

December 2027 may still seem a long way off, but analysis, permitting procedures, design, decision-making, engineering and implementation all take time. Companies that wait until enforcement becomes a concrete issue risk having too little time left to make improvements in a controlled and well-planned manner. Starting early gives you greater control. You know where you stand, which risks should be prioritized and what investment is required to safeguard the continuity of your operations.



Schedule a meeting with one of our experts

Would you like to know whether your wastewater treatment system is ready for the Water Framework Directive?
Call +31 0543 221 221 or email info@colubriscleantech.com.

5 Reasons

why wastewater treatment is a strategic investment

For industrial companies, wastewater treatment is not merely a regulatory obligation; it is a prerequisite for continuity and profitability. Regulations are tightening, water is becoming scarcer, and operational costs are under increasing pressure. A well-designed wastewater strategy does more than protect the environment—it protects your bottom line.

Below are five key reasons why wastewater treatment should be viewed as a strategic investment.





1.

Regulatory certainty as the foundation of profitability

Profit is only sustainable when it is achieved within the regulatory framework. Effective wastewater treatment ensures compliance with discharge limits and permit conditions. This prevents fines, production shutdowns, and permitting risks, while providing confidence to regulators, financiers, and investors.

2.

Structural OPEX reduction instead of symptom control

Wastewater treatment does not generate revenue and therefore must be operated as efficiently as possible. Every unnecessary kilowatt-hour, every kilogram of chemicals, and every additional tonne of sludge directly erodes margins. Designing treatment systems based on total cost of ownership structurally reduces both fixed and variable costs.
Low and predictable OPEX not only improves profitability but also enhances financial control.

3.

Securing water availability for growth

In an increasing number of regions, access to sufficient clean water can no longer be taken for granted. Wastewater treatment enables water reuse and reduces dependence on external water sources. In several industries, water availability has already become the limiting factor for production expansion.

4.

Responsible operations without additional burden

A robust wastewater treatment plant strengthens your position as a reliable and responsible producer. It prevents nuisance to the surrounding environment and supports sustainability objectives—without compromising operational efficiency.

Why Colubris

Colubris approaches wastewater treatment from the perspective of cost control and value recovery. We design low-OPEX solutions by prioritising, in order:

- Recovery of intact, reusable components such as proteins and fats
- Recovery or conversion into valuable products such as struvite, phosphorus, nitrate, or biogas
- Avoiding or minimising the use of chemicals
- Reducing energy and space requirements
- Maximising water reuse
- Minimising RO concentrate or converting it into usable products

Thanks to an exceptionally broad product portfolio, Colubris can combine technologies and compare them objectively. You do not receive a standard system, but a wastewater solution with the most attractive cost profile for your specific situation.



Prefer a rental solution?

Are you facing acute capacity constraints or an urgent compliance challenge? Colubris offers mobile and temporary rental solutions to ensure immediate treatment while a permanent installation is designed and implemented.

Colubris helps industrial companies translate their wastewater strategy into regulatory certainty, water availability and maximum profitability — now and in the future.

5.

Control over residual streams and raw materials

Modern wastewater treatment is no longer just about meeting discharge limits; it is about value creation. Through targeted separation and recovery, waste streams become manageable, and valuable components are preserved or recovered.





Where will we meet?

Follow Colubris on social media for the latest updates on our 2027 event appearances.

In 2027, Colubris will be present at the following events.

Plastics Recycling Show Europe

The Plastics Recycling Show Europe is the leading event for plastics recycling in Europe.

29-30 june 2027
RAI Amsterdam | prseventeurope.com

Livestock Philippines

Livestock Philippines has become an essential platform for the latest innovations, technologies and solutions that improve efficiency, productivity and sustainability in the livestock industry.

16-18 june 2027
Pasay City, Philippines | livestockphilippines.com

Academy update

COLUBRIS Academy

Within the Colubris Academy, we bring together knowledge, practical experience, and talent. We do this not only by continuing to develop our own colleagues, but also by actively collaborating with students and educational institutions. In this update, we share a number of great examples.



Successful WUR Career Days

Colubris attended both editions of the Career Day at Wageningen University & Research (WUR). With a great turnout and many valuable conversations, both days were a success and gave us an excellent opportunity to introduce Colubris to students and young talent.



Sharing knowledge with Saxion students

We also enjoy sharing our knowledge and experience with students from Saxion University of Applied Sciences. For example, International Business students conducted research into potential markets. Colubris colleague Luuk Rietvelt supported them throughout the project and connected the students with various experts from the field.

Anjeta shares her story

Colubris is already familiar territory for Anjeta ter Vrugt. In 2024, she completed an internship here as a Mechatronics student. She is now studying Industrial Engineering and Management and has returned to Colubris once again. This time, Anjeta deliberately wanted to gain a better understanding of a different department within the company. Within Engineering, she is working on the standardization and implementation of a Product Lifecycle Management (PLM) system.



> “There is a real investment of time and energy in guiding you. You are anything but just a number here.”
>
> **Anjeta ter Vrugt** | Intern

Her decision to choose Colubris again was no coincidence. “It is a very specialized industry where you can learn an incredible amount. Colubris is also far from a standard company, which means you get exposure to many different aspects of the business.” She also appreciates the way people work together. “A lot of time and effort is genuinely invested in guiding you. You are anything but just a number here. At the same time, you are also given the freedom to work independently on your assignment. I really appreciate that balance.”



Lunch & Learn

At Colubris, we share knowledge not only through hands-on experience, but also during our Lunch & Learn sessions. Over a shared lunch, colleagues update one another on projects, technologies and current developments. One of the sessions focused on the PROCAS project.

INNOVATIEHUB WINTERSWIJK-LICHTENVOORDE

Innovatiehub gets a fresh new look

Innovatiehub Winterswijk-Lichtenvoorde, of which Colubris is a member, has been given a refreshed look. The recognizable light bulb remains part of the new logo, but now in the form of a modern LED version.

In addition, our CEO Frank Tillmann is Chair of the Steering Committee of Innovatiehub Achterhoek. In this role, he contributes to strengthening collaboration between education, students and regional businesses, while also helping to promote innovation and talent development.

Optimal performance, throughout the entire service life



Wondering what is the best fit for you?
Contact our service team today.

From maintenance to continuous improvement

A properly functioning wastewater treatment plant requires more than just periodic maintenance. By monitoring performance and analyzing processes, our service specialists can identify anomalies in a timely manner and uncover opportunities for improvement. In this way, we help customers not only prevent breakdowns but also increase efficiency and reduce operating costs.

Because every plant and operating environment is different, Colubris offers customized service and maintenance. From individual inspections and repairs to comprehensive service contracts with periodic support and clear agreements regarding service delivery.

Customized Service

- Inspection and maintenance
- Replacement parts and repairs
- Process monitoring and optimization
- Laboratory analyses
- Training and e-learning
- Consulting, upgrades, and improvements

With a combination of technical expertise, process knowledge, and practical support, Colubris offers customers the assurance of a reliable service partner throughout the entire lifespan of their installation.

SERVICE AND MAINTENANCE

Get connected

Let's connect on the following social media and keep up to date with the latest news and developments within Colubris.

Through our social media channels, we regularly share updates, insights, and inspiring stories about our projects, innovations, and events. By following us, you become part of our growing community of like-minded professionals and enthusiasts in water, waste and bioresource technologies.

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