



aqua
minerals

Annual Report 2019 AquaMinerals

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Looking at things differently, looking ahead

‘You only see it when you get it’, Johan Cruijff once said. A simple and perhaps silly claim, but one that really hits the nail on the head. How often do we ‘suddenly’ realise something that was always staring at us in the face? I myself started looking at our physical surroundings very differently because of my Earth Science studies. Trees can tell us things about the type of soil they’re growing in, brown sludge in the ditch can point to seepage, and the Netherlands is made of finely ground Alps and Ardennes. Once you get it, you suddenly see it everywhere, and you begin appreciating it more and more.

What’s nice is that we are all different; we all look at each other, the surroundings, cultures and processes differently. That’s how we’re put together and how we’re programmed from birth. But if we hold on to our entrenched vision of the world, the result will be irreconcilable differences and ultimately discord. So, what if we stop trying to persuade the other and try instead to see what he or she sees? And, conversely, let the others see what we ourselves see. It’s difficult to do, but it can make us all so much stronger.

The recent COVID-19 virus outbreak has made us all look at the world differently. We suddenly became aware of the vulnerability of our health, we began keeping our distance as we walked past each other, and we saw the (outside) world almost exclusively on

a screen. Overnight, the importance of a number of sectors – which we ‘suddenly’ started calling ‘vital’ – became clear. And these sectors, which had been neglected until very recently, were able to keep our basic infrastructure running, and to protect and assist the vulnerable. I believe that society will now definitively start looking at these sectors differently; and rightly so.

At AquaMinerals, we do our utmost in practice to look at things differently and to listen carefully. We know where we now stand and where we want to be in the future in the valorisation of material streams – and we see plenty of opportunities here. But in the circular economy there are many stakeholders in the material chains, with varying points of view. By listening carefully to the views of others we, as AquaMinerals, learn more every day. This makes us better and better at matching our materials and services to the needs of these partners, and thus better at collaborating in achieving our objectives. And sometimes we also manage to inspire others with our way of looking at things.

The major transition to the circular economy requires that we look at our society and economy differently. Let’s all now attempt to do this and, most importantly, to ask about the other’s view. If we succeed in seeing it, we will ultimately also ‘get it’.

Olaf van der Kolk
Managing Director



This is who we are

AquaMinerals looks for and identifies destinations for the material streams that are generated by water treatment processes. Our organisation was established in 1995 to solve the residuals problem of the drinking water companies in the Netherlands. In 2016, we were joined by the Belgian drinking water company De Watergroep, and now we are also active for three Dutch Water Authorities.

It has been a long time since we have seen the water sector's residual streams as a problem. In fact most of them find a new functional application, and a number even bring in money. Together with our participants, research institutes, contractors and service providers, we seek out solutions that are both sustainable

and financially interesting. Circular working is our ultimate objective; we can repeatedly reuse the materials in processes in the water chain, or we can supply them to other circular chains. In collaboration with our partners we are very active in research and development, and are exploring new paths.

Our core values



Joint pursuit
of shared interest



Social
entrepreneurship



Innovation



Reliability

For and in the name of our participants, we:

- ✓ direct the chain
- ✓ procure logistical services
- ✓ sell the residuals and raw materials
- ✓ innovate and valorise through joint research with participants, clients and knowledge institutes
- ✓ carry out quality management
- ✓ arrange and maintain the required certificates and declarations
- ✓ monitor, lobby and advise in the areas of policy, legal and regulatory frameworks
- ✓ provide transparency in financial and product flows

Staff members

Number of staff members in service 15



Age 26-35	3
Age 36-45	7
Age 46-55	3
Age 56-65	2

University (wo (+) 3
Higher vocational Education (HBO) 8
Vocational Education (mbo) 4

Our participants:

At the end of 2019 AquaMinerals had fourteen participants; eleven drinking water companies and three Water Authorities.

DRINKING WATER COMPANIES



shares 2.808 interest 22,8%



shares 1.968 interest 16,0%



shares 1.242 interest 10,1%



shares 1.028 interest 8,4%



shares 802 interest 6,5%



shares 614 interest 5,0%



shares 574 interest 4,7%



shares 527 interest 4,3%



shares 354 interest 2,9%



shares 275 interest 2,2%



shares 252 interest 2,0%

**Total
Drinking water companies (DWC)**
shares 10.444 interest 84,9%

WATER AUTHORITIES



shares 546 interest 4,4%



shares 773 interest 6,3%



shares 537 interest 4,4%

**Total
Water Authorities (WA)**
shares 1.856 interest 15,1%

Total DWC + WA
shares 12.300 interest 100%

Highlights 2019

AquaMinerals keeps on growing

- In 2019, we disposed of over 264,000 tonnes of materials for our participants, an increase of 16,000 tonnes. This increase is almost entirely related to the extra materials from the Water Authorities.
- The sale of materials with a positive economic value rose to over € 3.4 million, more than € 400,000 above the previous record (€ 3.0 million in 2018).
- The transport expenses increased sharply because of inflation and the extra tonnage, but also because new material streams require different forms of transport.
- The recycling percentage decreased because the Water Authorities' tonnage is to a large extent not (yet) recycled.
- The transport kilometres increased, due to logistical problems during the 'sludge crisis' (see page 23) and to the increased transport of lime pellets, among other reasons.
- The turnover from residuals and consulting services rose sharply to € 11.2 million. Growth was evident on all fronts; particularly in the material streams of the Water Authorities and projects on an hourly-basis for third parties.
- Sick leave increased in 2019, primarily because of the long-term illness of two staff members.

Key figures

	2019	2018	2017	2016
Results				
Turnover residuals and consulting	€ 11,134,219	€ 8,670,780	€ 7,216,400	€ 5,105,800
Turnover non-shareholders in %	7.4	7.2	4.0	4.1
Total transport and acceptance expenses	€ 7,715,865	€ 5,588,800	€ 4,563,500	€ 3,245,100
Sales value (pos.-value materials)	3,446,367	3,002,328	2,666,025	1,944,375
Acceptance (neg.-value materials)	€ 2,137,179	€ 819,567	€ 593,454	€ 522,753
Operating result (before taxes)	158,650	203,800	74,800	1,200
Shareholders' contribution in €/t ¹	€ 5.63	€ 5.82	€ 5.23	€ 5.24
Assets				
Balance sheet total	€ 4,773,586	€ 3,354,400	€ 2,864,400	€ 2,431,100
Shareholders' equity	€ 1,298,711	€ 1,117,300	€ 847,400	€ 787,500
Liquidity (quick ratio)	1.4	1.4	1.4	1.5
Materials' figures				
Supply in tonnes	260,792	247,800	246,650	208,500
Recycle percentage	81	87	83	87
Transport kilometres per residual tonne	3.1	2.9	2.8	3.1
Personnel				
Number of employees FTE at report-year end	10.0	8.6	8.5	7.7
Absenteeism in % ²	7.0	5.4	1.4	1.8
Average turnover per FTE	€ 1,117,103	€ 1,008,230	€ 848,988	€ 633,091

¹ for '16-'18 incl. retention of 10% sales value

² re. 2019: incl. long-term sick leave of 2 employees

Third Water Authority joins

On 1 October we welcomed a third Water Authority to our collective: **Hoogheemraadschap Hollands Noorderkwartier** (HHNK). Apart from energy, HHNK would also like, whenever profitable, to recover struvite, cellulose, bioplastics, biomass and sand from its wastewater treatment plant (WWTP) processes. To realise these ambitions HHNK needed a single window, endowed with extensive knowledge and experience in the area of waste and residual materials. AquaMinerals has energetically taken on this role, setting to work on cellulose, struvite and WWTP sand. Thanks to the accession of HHNK we can benefit from even more scale advantages in these streams.



Marjan Leijen, Olaf van der Kolk and Noor Ney ratify the new collaboration.

Product and market development for Water Authorities

The Dutch Water Authorities combine their forces in the recovery of (raw) materials from wastewater treatment through the Energy and Raw Materials Factory (EFGF). AquaMinerals and EFGF had already been working together for a while on a project basis when, on 1 July 2019, they began doing so in a structured fashion. We support EFGF specifically in the product and market development of the materials. For EFGF this means greater continuity, while for us it represents extra capacity to accelerate a number of ongoing projects and new explorations. We also see plenty of opportunities for synergy with the drinking water companies, particularly in terms of market contacts, research projects and the development of new material stream chains.

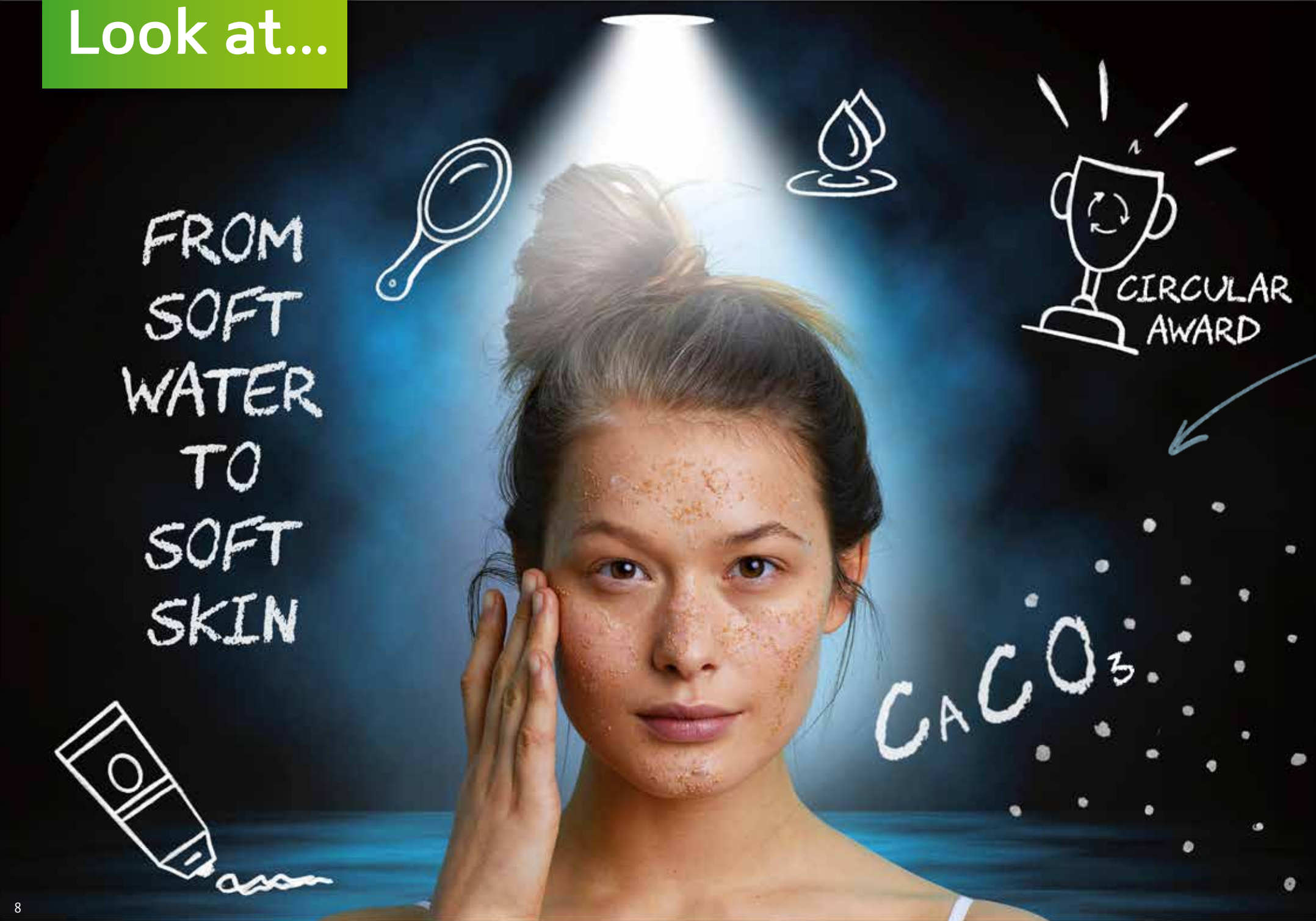


Marking time because of PFAS and nitrogen

AquaMinerals was inevitably affected by the nitrogen and PFAS problems. This primarily concerned materials used in infrastructural works, which amount to about 15% of the total. The worry about nitrogen led to project delays, which meant that we had to store the materials for longer periods. These supplies were eventually used in the first quarter of 2020, when government measures allowed permits to be issued again and the (delayed) projects went ahead. There was also a lot of confusion about PFAS; because of the lack clear standards and guidelines for processing, the raw material chains practically came to a standstill. Only after the water sector had conducted targeted research, the government set standards, and market players ensured external processing chains, did some tranquillity and perspectives for action return.



Look at...



Proud!

In 2018, working with the cosmetics company Naïf, we developed a face scrub made with ground calcite from The Calcite Factory. This application confirms the material's high quality, since the standards in the cosmetics branch are after all particularly high. In February 2019 the product won the Circular Award Business in the consumer products category. Because the drinking water companies' calcite plays an important role in this **circular chain**, it felt a little like 'our' nomination and award.



Green vehicle fleet

The environmental impact of AquaMinerals' activities is itself modest, but we do try to become greener whenever possible. With the agreement of our staff members, we decided that all of our new lease cars would be powered by 'green' fuels. Given today's market for electric cars and the fiscal incentives, we can take this step without spending too much more.

Management on-site for aluminium sludge

In 2018 AquaMinerals took over part of the residuals management at the De Punt site of the Groningen water company. This is the first time that AquaMinerals has moved up so far in the production chain. This specific instance involves the aluminium sludge that is generated at the site and which is hard to thicken. This means that the transport and

acceptance expenses are high, and recycling is practically impossible. Thanks to focused attention, measures and arrangements, we managed to increase the dry-matter content to 2.5% (from 1.8%), which meant 40% less sludge volume and thus lower discharge expenses. In 2020 we aim to achieve a dry-matter content of 3.5%.



Clearer transport administration

The financial and administrative processing of the shipments had become increasingly extensive and complex over the last few years. Normally the process is triggered by the transporters' invoices, but at this point we have to rely on a variety of information streams. This is why, starting 1 January 2019, we began in the planning to input the shipments directly as an order in the system; that is, it is done in advance and by the person who has all the relevant information. As soon as the tonnage is known, the processing then runs much faster and more accurately; we know what invoices to expect and where things stand.

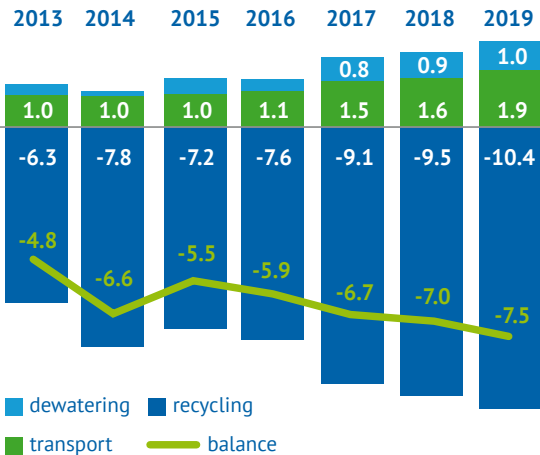
Sustainable results

Climate benefits through negative CO₂ footprint

Together with the shareholders we are striving to achieve 50% more climate benefits in 2030 compared to 2015. We can speak of a climate benefit because the residuals chain has a negative footprint – from production to application. The CO₂ emissions avoided because of recycling are far greater than the impact of the transport and dewatering. We calculate the footprint every year by means of a life-cycle analysis (LCA). In 2019, the climate benefit again increased, surpassing 7 million kg CO₂ equivalent.*

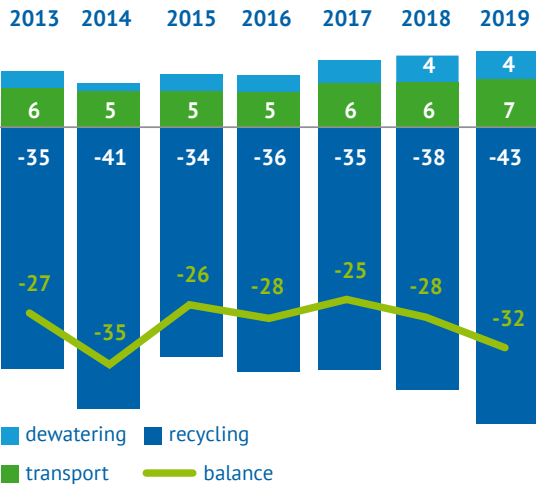
**) Every year we update the emission factors for this calculation. But to make comparisons possible with the past, we recalculated the results for the years 2013-2018 using the new emission factors; excepting, of course, cases of physical changes, for example, a decreased energy consumption in the grinding of calcite pellets.*

Total footprint shareholders and third parties (M kg CO₂-eq)



This, despite a sharply increased volume of new materials from the Water Authorities, most of which are (still) considered waste materials, whose processing has a negative environmental impact. The climate benefit for the material streams from the drinking water sector improved on balance. The transport footprint increased slightly, but there were also more high-value destinations and thus savings in primary raw materials.

Footprint per tonne, only drinking water shareholders (kg CO₂-eq)



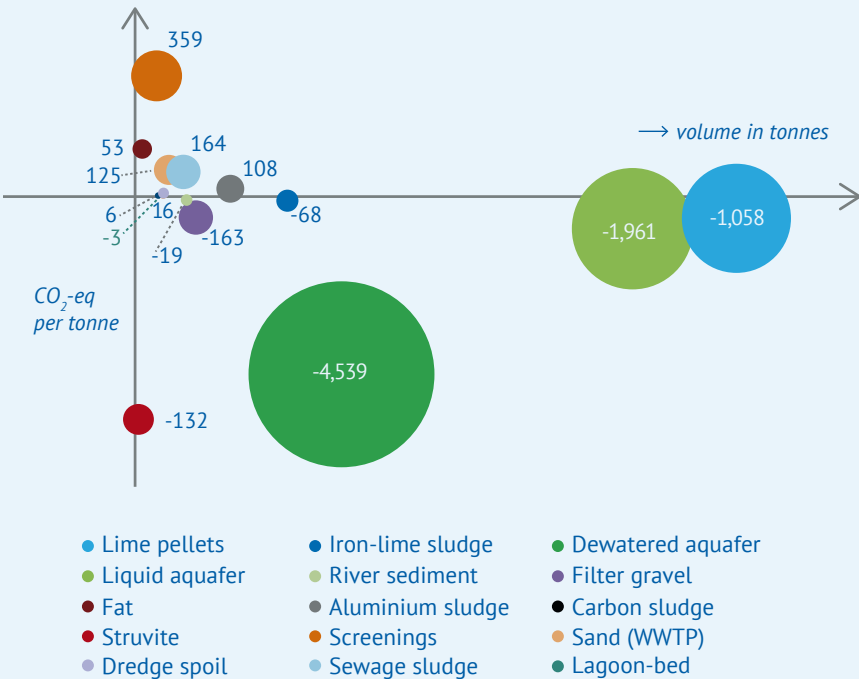
This chart only includes the drinking water companies. We don't (yet) have the data series for the Water Authorities, because their participation is quite recent.

More and more climate-positive materials

Calcite pellets, aquafer, filter sand and struvite have a negative footprint and therefore generate a climate benefit. The biggest contributor is dewatered aquafer, which is used as a sulphur-binding agent in digesters and thereby saves ferrous chloride. In 2019 iron-lime sludge and river sediment also had positive net results. For the other materials, the impact of transport and processing outweighed that of the savings of primary raw materials at the clients'. Our ambition is to make all material streams climate-positive!

The bubble graph shows how far we have come. The size of the bubble indicates the climate impact or benefit for each material. On the vertical axis, the materials are ranked according to their climate impact per tonne. All those below the horizontal axis are climate-positive. On a per tonne basis, struvite generates the greatest climate benefit because it saves on phosphate ore or artificial fertilisers. The transport and combustion of screenings has the biggest environmental impact per tonne. On the horizontal axis the materials are ranked according to volume: from 670 tonnes of struvite on the left end to 91,000 tonnes of calcite pellets on the right end.

Climate benefit per material (negative = climate benefit) (tonnes CO₂-eq)

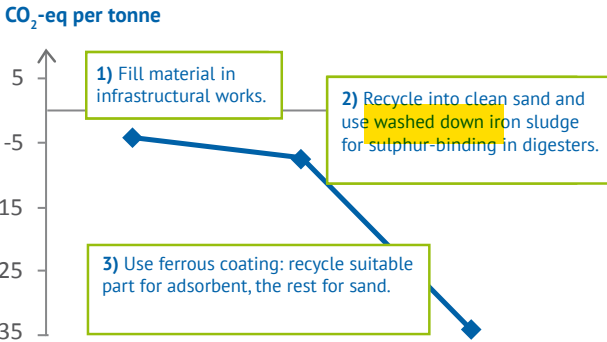


Progress on other materials as well

The footprints for WWTP sand, screenings, fat and aluminium sludge in particular show scope for improvement. Here, too, we are making good progress. Screenings have a new application on the horizon as a substrate in green roofs: a collaboration with the Blue-Roof start-up. Work is also underway to use fat as a raw material for biofuel production. And AquaMinerals is a co-client of Alu Circles, an international research initiative aimed at developing a market-ready application for aluminium sludge within two years.

There are also still plenty of improvement opportunities for materials that are already climate-positive. As can be seen in this graph, an application breakthrough can in a single bound hugely improve the footprint.

Graph: Filter-sand footprint evolution



Circular in the water sector

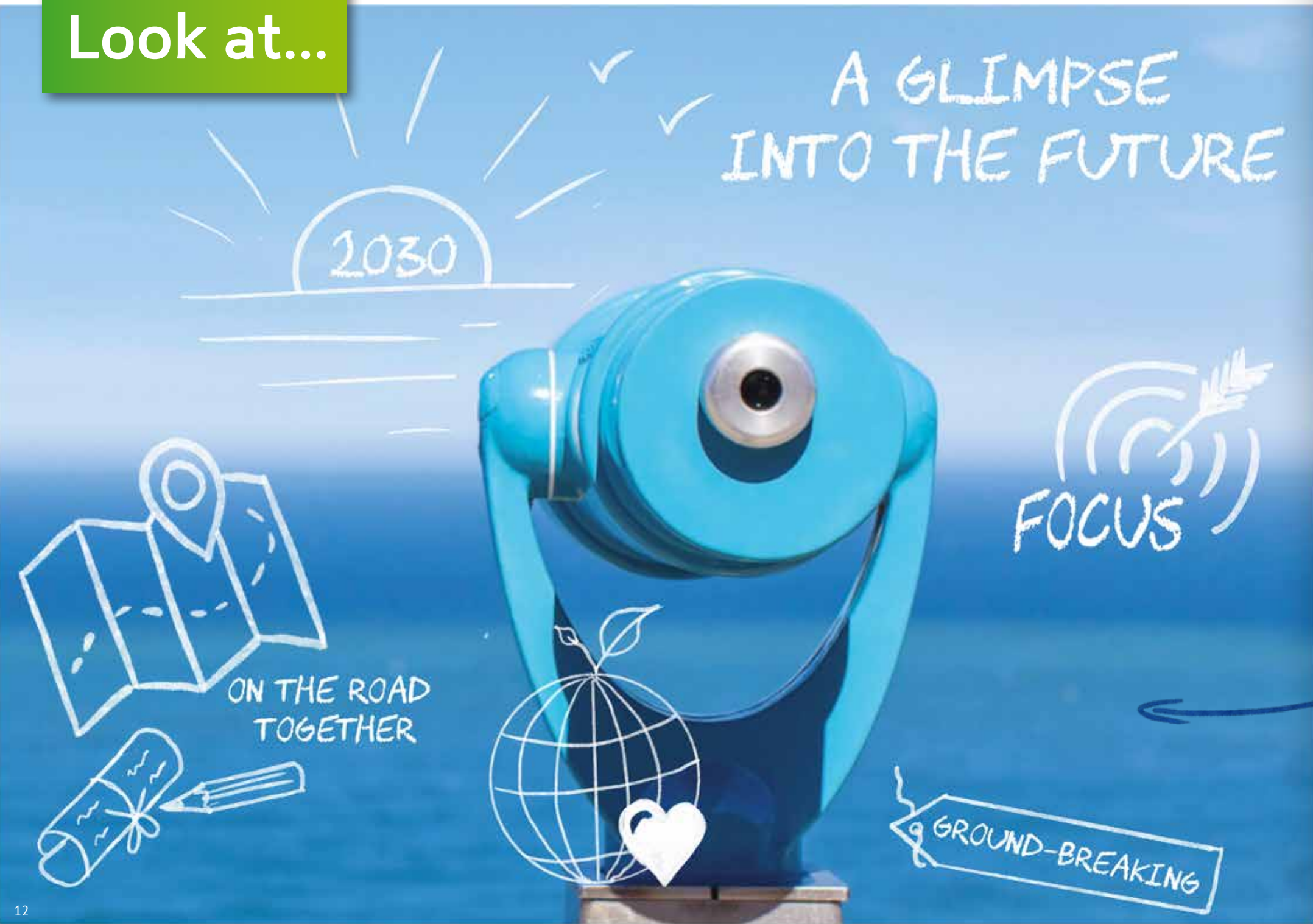
Products that can be reused in the water chain contribute to making the sector circular. Good examples of this are the seeding material made from a company's own calcite pellets, and the use of aquafer as a sulphur-binding agent in wastewater treatment. Currently, we are working with our partners on a coagulant made from aquafer, on iron pellets for arsenic removal, and on iron pellets to bind phosphorus to prevent (blue-green) algal growth in surface water. In 2019 a project was also launched aimed at producing slaked lime from calcite pellets. Since the water sector uses large volumes of slaked lime and coagulant, the prospective benefits are great. With regard to the longer term, we are collaborating with KWR, Stowa and EFGF in the WiCE-Stowa 'Circular Water Sector 2050' project in creating a vision and concrete roadmap.

Circular actions save primary raw materials

The Calcite Factory 2.0: grinding greener pellets more efficiently

Working with our partners, over the last few years we have developed high-value and partially also circular applications for sand-free calcite pellets. Think, for instance, of cradle-to-cradle carpet tiles, cosmetics, animal feed and the use of calcite as a seeding material in a company's own water softening processes. And further applications are under development. These would require that the calcite pellets be ground, which is highly energy-intensive. With The Calcite Factory 2.0 – the intended successor to the current pilot location – we want to make a significant advance towards maximising the efficiency of the grinding process and using green energy.

Look at...

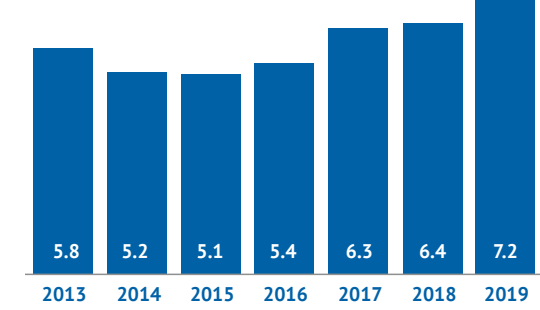


Relatively larger transport footprint

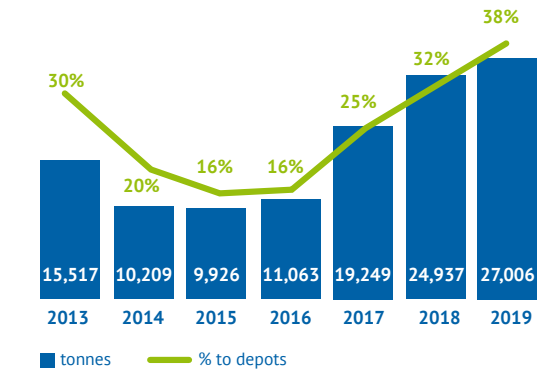
The transport of the materials is responsible for a significant footprint: 1.9 million kg CO₂ equivalent in 2019. That is 20% more than in 2018, while the volume of materials only increased by 7%. This has a number of explanations. Because of the 'sludge crisis' (page 23), treatment sludge was transported over large distances. Fat, screenings and WWTP sand were disposed of in small volumes, which meant higher fuel consumption per tonne. Also, since 2017 we have had to make greater use of interim storage

depots to dewater liquid aquafer; this portion grew in 2019 from 32% to 38%, which also entailed more transport. Moreover, in 2019 many calcite pellets were sent to England; it is true that this was done by ship, but the distance to the client is six times greater than is the case of clients in the Netherlands. When it comes to our own transport, we are fully converting to 'green fuels': as of 2019, new lease cars are to be completely electric.

Transport climate footprint
(kg CO₂-eq per residuals tonne)



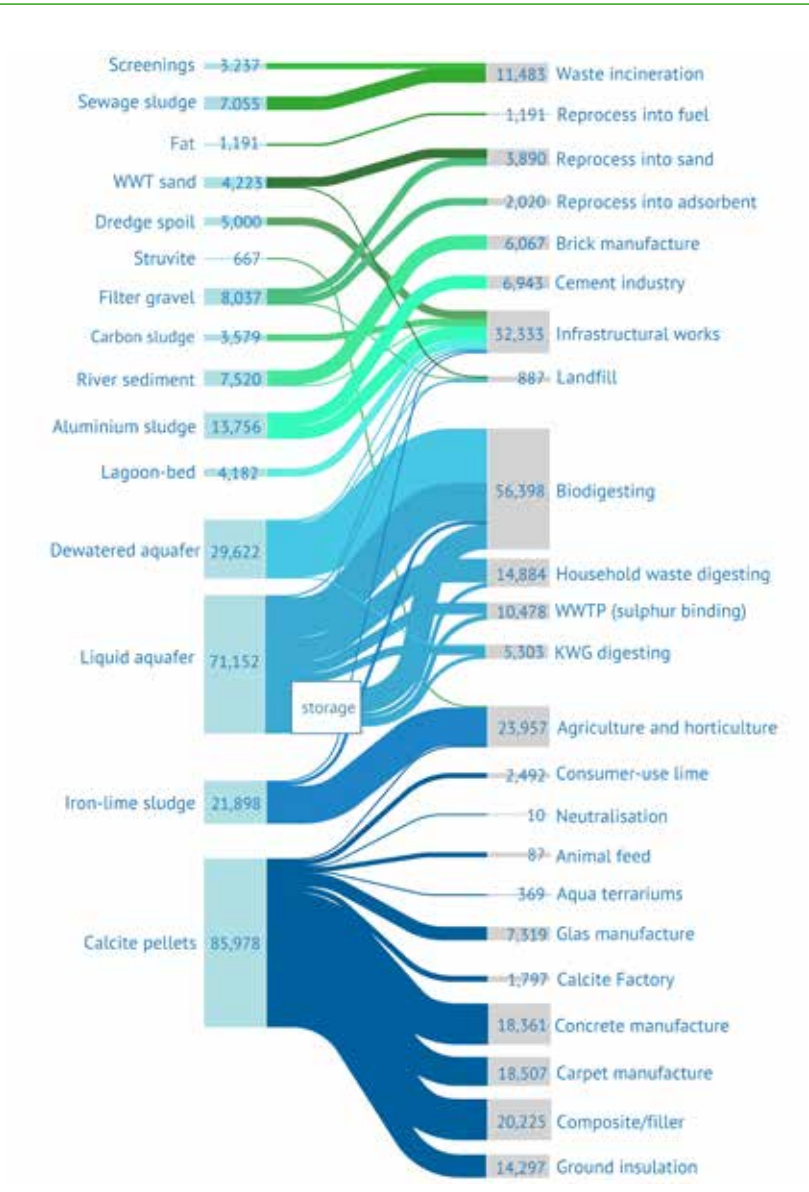
Use of LIQ aquafer storage



Roadmaps 2030

Together with the drinking water companies and Water Authorities, we always look beyond what seems possible today. We are pioneers, explorers, researchers and discoverers. We want to be ground-breaking in the quest for solutions for a clean and healthy living environment. For a world with less waste, fewer emissions and lower consumption of primary raw materials.

To guide this ambition we have created two 'Roadmaps 2030'; initially, with the drinking water companies (2016) and in 2019 with the Water Authorities. This vision of the future helps the water sector stay at the forefront and respond in a timely manner to changes – and indeed to actually embody the change itself.

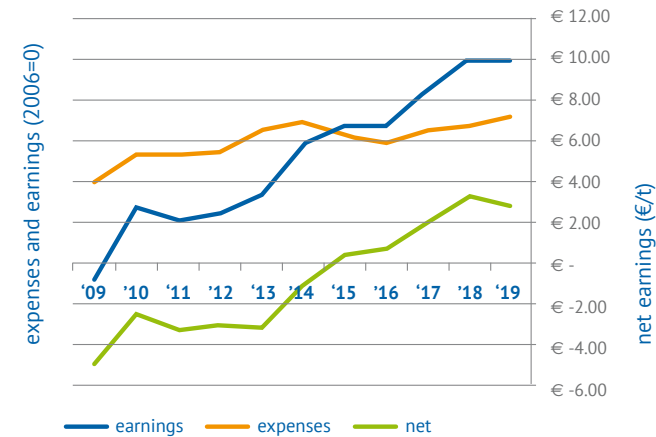


This Sankey diagram shows where the different material streams are applied (in tonnes). The width of the line indicates the volume of the relevant stream.

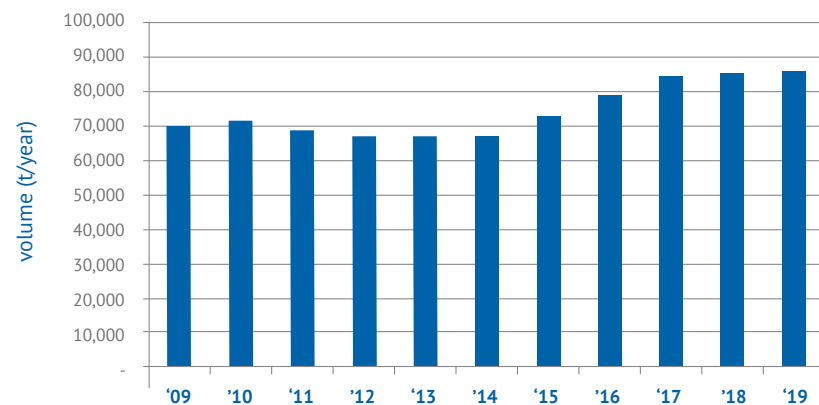
Calcite pellets

In 2019 our shareholders supplied a total of 85,978 tonnes of calcite pellets. With the new softening installations in Brabant, Belgium, and the Vitens supply area, this tonnage will increase slightly in the years ahead. The constant production of calcite pellets also means that there needs to be a continuous demand. Not every branch can provide this however. The solution is to spread the risk through a mix of different branches and applications.

Calcite: expenses and earnings

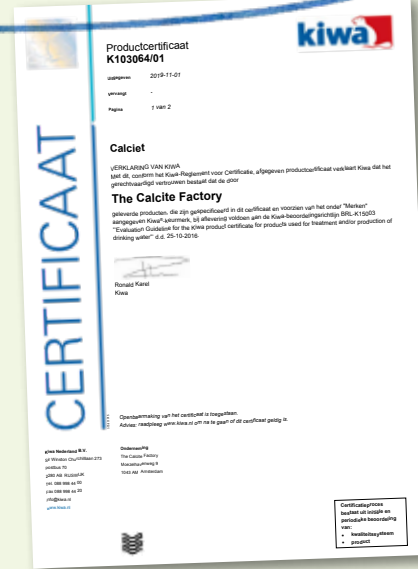


Calcite volume



KIWA certificate for The Calcite Factory

The Calcite Factory dries, grinds, sieves and/or sterilises calcite pellets from softening reactors. The pure, sand-free pellets are then used, among other applications, as new seeding material in the softening process: thus, 100% circular. All materials and substances that come into contact with the drinking water in the treatment process must meet strict regulatory requirements. These are safeguarded by an assessment guideline, in this instance BRL-15003. On 5 November 2019, The Calcite Factory was granted this coveted KIWA certificate. This high standard also opens up new opportunities for applications in other economic sectors, whose requirements are generally lower.



Now that The Calcite Factory is certified for the supply of seeding material under KIWA Water Mark conditions, we want to have more drinking water companies use Dutch Calcite in their softening processes. This is currently being done and/or tested at Waternet, Evides, Dunea, WML, Brabant Water, De Watergroep and Oasen.

The finely ground calcite pellets in the Naïf face scrub (see page 8) also come from The Calcite Factory.



Look at...



Calcite in feed and food

Ca Minerals develops high-value calcium raw materials and products from sustainable sources for the feed sector and technical applications. We have been working together very satisfactorily for some time – examples of our joint products are the pecking stones for chickens and milk replacers for calves. Van Zutphen Feed Processing, a company that is active in the milling of products for the food industry ('feed' is for animals, 'food' for humans), is also studying the possibilities of using calcite in food products. The initial exploration suggests that this should be possible, since drinking water is after all also suitable for human consumption. Hopefully, this will lead to further positive developments in 2020.



Delivery to England

AquaMinerals has for many years sent calcite pellets to England for use in the ceramics industry. England processes ceramic in a manner that requires large quantities of calcite pellets. In 2019 English clients built up a large reserve of pellets to cover the risks associated with Brexit.

New on-the-road drying trailer

Over the last few years Ardagh purchased about 7,000 tonnes of dried calcite pellets annually. The pellets are dried in a specially-designed trailer: the engine heat is used to dry the pellets. Since the trailer was approaching the end of its technical lifespan, its owner, Van Lijssel, has developed a trailer with a new heat exchanger. When the new trailer goes into service in 2020, the drying process will be even more efficient: with the capability of simultaneously drying more calcite pellets, and even of drying them over a shorter transport distance.

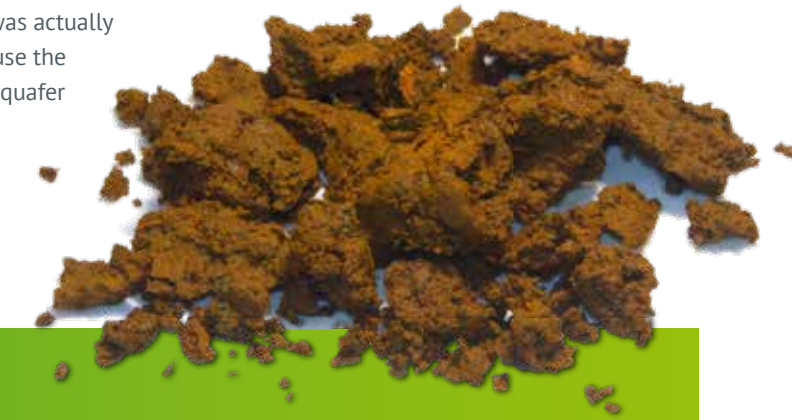
Liquid and dewatered aquafer

In tonnes

In 2019 a total of 43,411 tonnes of dewatered aquafer was disposed of, that is, 22% more than in 2018. The increase of 66% for liquid aquafer was even greater, namely, 91,000 tonnes. The prognosis for 2020 is however much lower, with an expected drop of 47% for dewatered and 43% for liquid aquafer. This has to do with the fact that the supply in 2019 was actually exceptionally high, but also because the dry-matter content of the liquid aquafer

in 2020 is expected to increase thanks to a better quality assurance.

In 2019 seven ships were loaded and transported a total of 8,431 tonnes to German biogas plants.



Aquafer across the borders

Both liquid and dewatered aquafer have found a useful application as sulphur neutralisers in biogas plants. Up until a few years ago, we only made deliveries in the Benelux and Germany, but demand elsewhere is now growing, particularly in Denmark and France. At end of 2019, contacts were also made with interested parties in Poland, Bulgaria, the Ukraine and Israel. The reputation of this very useful and quality aquafer from the Netherlands and Belgium has thus extended both within and outside of Europe. In these cases we must of course examine the local regulatory conditions, but also whether we want to deliver at such distances, given that demand here also far exceeds supply.

Transport by ship

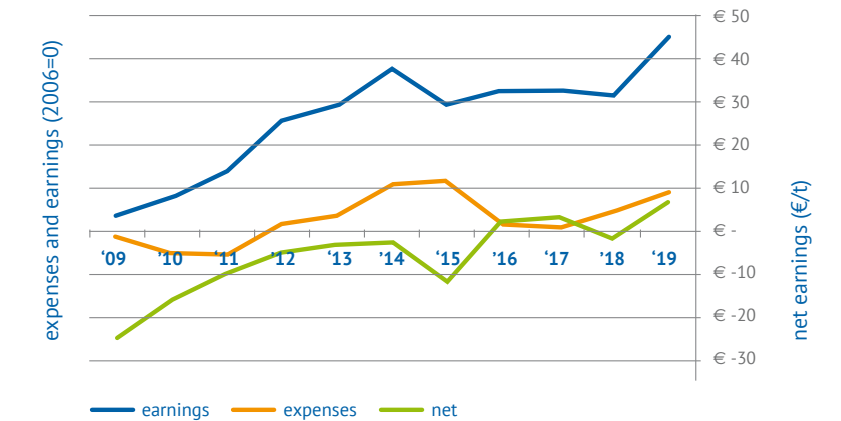
In 2019 a total of 11,006 tonnes of calcite pellets were transported by ship. This represents 12% of the total annual volume. Ship transport is an attractive solution for large volumes and also means lower CO₂ emissions per tonne.



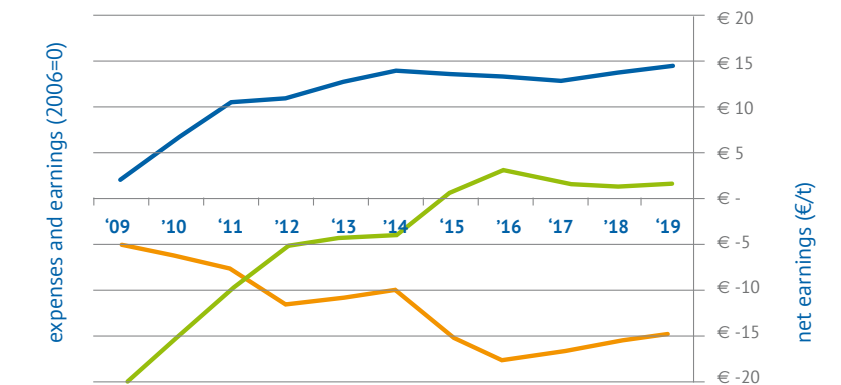
Application in biofilters

In 2019 we delivered calcite pellets for use in the biofilters at Attero's Wilp site. The addition of calcite pellets counters the acidification and thus contributes to lengthening the biofilter's lifespan. The ideal pH value makes for optimal microorganism activity.

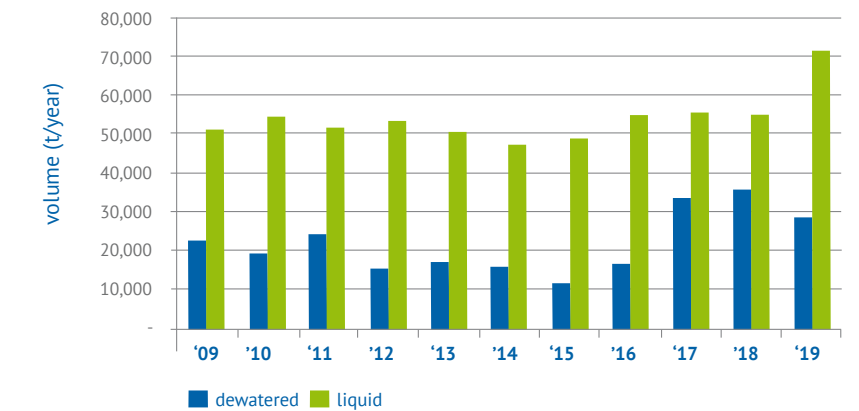
DEW: expenses and earnings



LIQ: expenses and earnings



Volume DEW and LIQ



Even more applications

The application possibilities are expanding beyond the familiar use in biogas plants. Aquafer thus is being used in water treatment whenever, under anaerobic conditions and depending on the production process, toxic H₂S gas is formed, with the associated odour complaints of course. Aquafer reduces the odour to an absolute minimum. We also see aquafer being used in certain growing media, as a compost enricher and for phosphorus removal in wastewaters and (bathing) lakes.

Add to biomixes

A new possibility is to incorporate the aquafer into the elaboration process of companies that produce the biomixes for digesters, rather than to deliver it to the digesters directly. Biomixes are made of easily digested organic material, like supermarket expired-product waste. If the sulphur present binds to iron, and is thus incapable of forming H₂S, these biomixes become more attractive for biogas plants.

Hercauwer

The Hercauwer project is researching the possibility of producing new coagulant from aquafer. This year we completed the theoretical part of the work. The production of coagulant has already been successfully tested on a small scale in manure processing. This project is also studying whether coagulant can be produced that is suitable for wastewater treatment and/or drinking water production. The theoretical conclusions were so promising that a processing pilot site is to be built in 2020. We are conducting this research in collaboration with a number of drinking water companies and Water Authorities.

Granulate

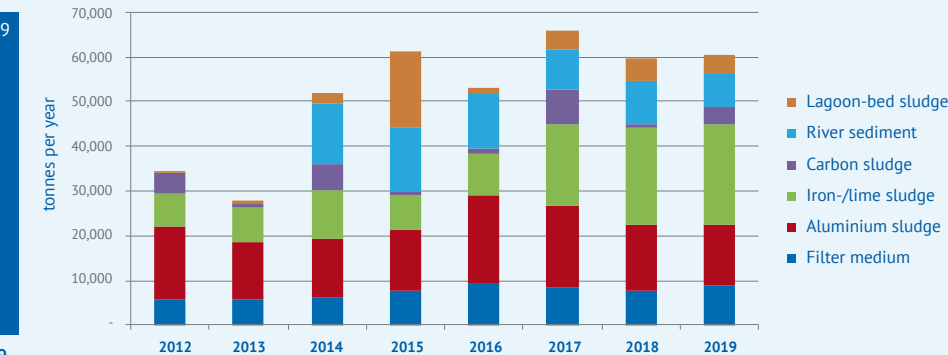
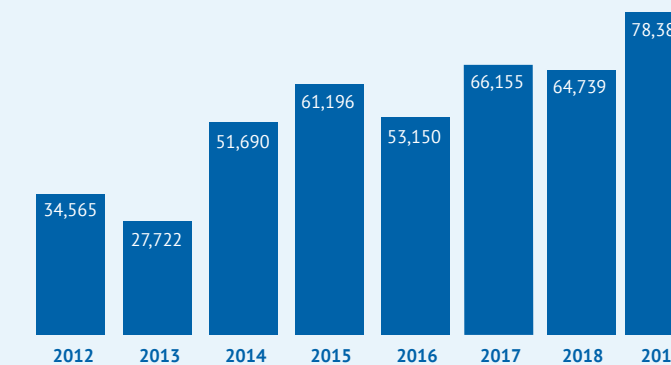
Together with our partners we have for years studied the possibility of producing physically stable and chemically-reactive ferrous granules from aquafer. These ferrous granules could be used as an environmentally-friendly binder for phosphorus and arsenic in water, and for H₂S in the gas phase. We also want to make a circular use of the aquafer, as we do with calcite pellets. In drinking water production applications, the pellets do in fact remove the arsenic very effectively, but they also leach organic matter and manganese. We worked with KWR to see whether this could be prevented. The outcome was positive: the leaching can be reduced to levels far below the drinking water standard. This opens the door to the circular application of aquafer pellets in the drinking water sector!



Other material streams from drinking water companies

The drinking water companies supply large quantities of calcite pellets and aquafer, and we are finding more and more valuable applications for them. By 'other material streams' we are referring to aluminium sludge, carbon sludge, (iron) lime sludge, lagoon-bed sludge, river sediment, filter sand and filter gravel. Although the disposal of these streams is more complex than that of aquafer and calcite pellets, we do see some attractive developments happening here also.

Total other residuals



Filter gravel

The filter gravel material stream made a breakthrough in 2019 with an attractive new application. In 2018, together with our partner Koers from Bovensmilde, we developed a method to separate accreted filter gravel with (gravel with a thin ferrous coating) from non-accreted gravel. The ferrous gravel already started being used that same year at a number of sites as a phosphorus-binder – for example in bulb cultivation, which we reported on extensively in our previous annual report. In 2019 we were often able to use this phosphorus-binding application; for instance, in Natuurmonumenten's dephosphorisation project in West Brabant, where the ferrous sand is used as a nutrient block. After some delay because of the nitrogen problems, the 1,300 tonnes were delivered in early 2020. This is the biggest project of its kind.

In partnership with Green-XL and Moerings, we also developed an application for accreted filter gravel as a substrate for pond plants and in pond earth. In 2020 the product will become available in gardening centres and pond specialty stores. The filter gravel works in two ways: as a phosphorus-binder it makes the pond water clear; and at the same time the pond plants become healthier because they can absorb the phosphorus gradually (when they need it).



Aluminium sludge

In 2019, 23% less aluminium sludge was disposed of than had been budgeted. That is good news, because it means that we managed to dry the sludge more effectively and the volumes were therefore thicker. Waterbedrijf Groningen succeeded in increasing the dry-matter content to the point that sludge production was reduced by no less than 50%. This meant over 200 fewer shipments! Moreover, we have found a high-value destination for De Watergroep's aluminium sludge. The sludge will be stored for several years in the cement industry.

In the Alu Circles project, which started in 2019, we will be seeking further high-value applications for aluminium sludge. The project is an initiative of De Watergroep, Corvers Procurement, Allied Waters and AquaMinerals, and includes participants from all over the world. We expect to be launching new processing and application chains in 2021.

Iron-lime sludge

Iron-lime sludge is directed whenever possible to agriculture. But since this relies on the weather being good, the wet spring of 2019 meant that the iron-lime sludge could not be directly applied in an optimal manner. Moreover, this residual actually consists of a mix of two materials (iron and lime), which makes finding it a value-added application more difficult, even in agriculture. This confirms a general principle: the purer the materials, the higher-value the application.

River sediment

River sediment is a residual generated at a number of drinking water companies. Part of it is used as a construction material, and another as a substitute for ferrous clay in the brick industry. Ferrous clay is used to give the bricks a red colour; the amount of iron determines the level of redness. Working with the brick industry, we are looking for possibilities of making use of all of the river sediment volumes.



Carbon sludge

Carbon sludge is mainly applied in construction works, a market that was hit hard by the problems surrounding PFAS. This material is generated primarily in the production of drinking water from dune water; powdered carbon is used to remove the organic material that is still present in the water at the end of the process, and it also removes PFAS. The activated carbon thus prevents the drinking water from exceeding the PFAS standards. The relatively high level of PFAS that gradually accumulates in this sludge, makes its disposal very problematic. Disturbances in the market for secondary construction material also play a role in this context. At the moment, the material can only be used as construction material at landfill sites.

But there is also very good carbon sludge news to report. In 2019 research was carried out jointly with Dunea and the Aa and Maas Water Authority to see whether this sludge still had sufficient adsorption capacity for another application, namely: the removal of pharmaceutical residues in wastewater treatment. This turned out in fact to be the case. So, in this instance a drinking water sector material stream can in principle be used by the Water Authorities. If this process can be effectively implemented on-site, then we will have a great example of collaboration in the water chain.

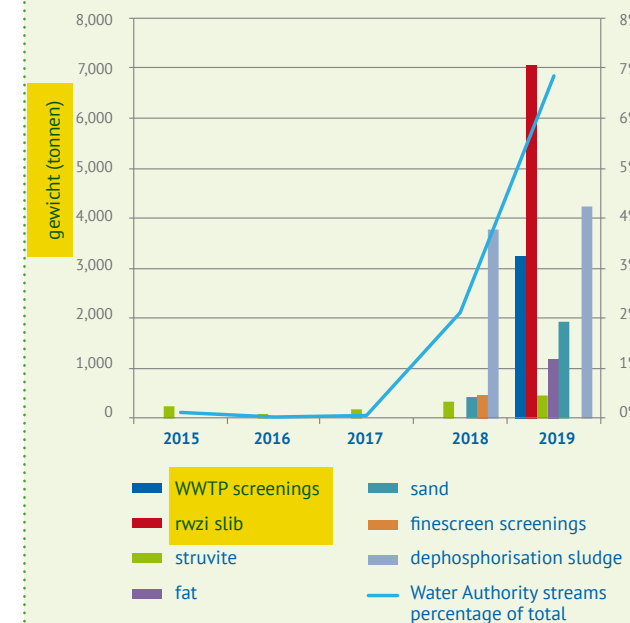


Material streams from the Water Authorities

In 2019 a third Dutch Water Authority joined our collective: Hoogheemraadschap Hollands Noorderkwartier. Along with the existing Water Authority shareholders, Aa and Maas, and Amstel, Gooi and Vecht, the new one supplies (new) material streams, such as sand, finescreen screenings, screenings, fat, WWTP sludge, dephosphorisation sludge and struvite.

In 2019 we disposed of more than 18,000 tonnes of material streams for the Water Authorities.

Water Authority streams



Screenings

Screenings are one of the new streams from the Water Authorities. Currently these screenings are incinerated in waste-to-energy plants for energy recovery. But we are well on our way to an attractive new application. Together with the Blue Roof start-up, we are working on using these screenings to produce a substrate for green roofs. The initial results are positive. Various test roofs have been installed to assess their suitability over a longer period. Apart from our shareholders, other Water Authorities are also participating in this project. Here, too, we see how collaboration leads to interesting research.



Fat

Fat is also a new material stream which we began to dispose of in 2019 for our Amstel, Gooi and Vecht Water Authority shareholder. We are maintaining the physical disposal channel, but by merging this material stream with that of other Water Authorities we could start to look at a higher value disposal.

Sand

The developments in the area of sand last year were limited. The Water Authorities that took part in the sand pilot project, but that are as yet not AquaMinerals shareholders, can no longer, for reasons of procurement law, following the test period of two years, dispose of their sand directly via AquaMinerals. They therefore withdrew from the pilot, as planned. Changes in supply volumes of this sort make it difficult to innovate. When more Water Authorities become members of AquaMinerals the supply stability over the long term will increase. This will mean more innovation opportunities on the road to high-value chains for the reprocessing and application of sand.

Dephosphorisation sludge

As in 2018, the Amstel, Gooi and Vecht Water Authority discharged dephosphorisation sludge in 2019. This sludge arises in the lakes in which the Water Authority reduces phosphorus content. The phosphorus binds to the added iron chloride and precipitates as dredge spoil, which is then discharged in batches. Here, too, the disposal was complicated by the nitrogen and PFAS problems.

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EVERY YEAR



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TOILET PAPER

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60% CELLULOSE

Finescreen screenings/ cellulose

Finescreen screenings are removed from the influent streams at wastewater treatment plants; cellulose constitutes 60% of them. Last year we sought reprocessing capacity for this material in the market. Our effort was not successful, however, since the market players desire more engagement and commitment from the Water Authorities, given the sales risk associated with these material streams. It obviously will take time to work this out in a reasonable manner. The Aa and Maas and the Hoogheemraadschap Hollands Noorderkwartier Water Authorities, together with AquaMinerals, are looking at the possibility of themselves jointly investing in a plant to process the Water Authorities' current (and near-future) screenings. The developments are being coordinated within the EFGF Cellulose lead-group. The active participation in the development of a reprocessing plant by the Water Authorities themselves will increase the prospects of success, because the risk associated with the input material will be borne by the suppliers. An own plant will vouch for a systematic and high-quality provision of screenings/cellulose. We anticipate a decision on the matter in 2020.

Quick gear-switching with WWTP sludge

In 2019 AquaMinerals became active for the first time in the WWTP sludge market. At the end of 2018, our shareholder, Waternet/ Amstel, Gooi and Vecht Water Authority, decided to build its own sludge dryer to dispose of dewatered sludge. The heat required for the process would be provided by the AEB waste-to-energy plant. As is known, AEB had a serious plant breakdown last year. This put the dryer project on-hold. But Waternet's operational sludge processing at AEB also ran into problems. Waternet asked AquaMinerals to help find a solution. Despite the over-stretched sludge market, we succeeded in getting the agreement of various contractors to dispose of a substantial part of Waternet's sludge. AquaMinerals was thus able to quickly switch gears and demonstrate the added value in the market uptake of sewage and wastewater treatment sludge.



Struvite

In light of the installations operated by our participants, the supply of struvite could be larger than is now the case. We hope that the current positive developments will challenge them to increase their extraction of struvite. A special new destination involves supplying struvite to the Velda company, which uses it as 100% natural fertiliser for water plants. Struvite is produced in the treatment process as a crystal, containing phosphorus, ammonium and added magnesium. The phosphorus, in particular, is a key fertiliser for plants. This poorly soluble crystal is an ideal slow-release fertiliser, because the plants can themselves take up the most important nutrients they need. The struvite therefore ensures that the lake is healthy and clear.



Struviet als meststof voor mais



Expectations for 2020

As we write this annual report, we find ourselves in the middle of a global outbreak of coronavirus. An unprecedented crisis that affects all aspects of our society. Nobody knows how and when we will be able to return to normal life. In these pages we refer to our expectations as they were just before the crisis. Whenever possible, we intend to pursue our plans with our familiar confidence and enthusiasm.

Visible results from chain collaboration

The drinking water companies and Water Authorities have worked together via AquaMinerals for a long time. In 2019 this collaboration received a new impulse through the product and market activities for the Energy and Raw Materials Factory and the accession of a third Water Authority. We collaborate in research projects, such as the use of iron or powdered carbon in WWTPs, and in making approaches to other economic sectors, such as industry and agriculture. We expect the attractive results of this combined effort to continue in 2020.

25 years of AquaMinerals

In 2020 AquaMinerals will mark its 25th year of existence, and this is a cause for celebration. But because of the corona crisis we will be celebrating it one year later than planned: the new date is 1 July 2021. The event's highlight will be a seminar with exciting speakers in the field of circularity, from the world of European politics, space travel and festivals. And at

the *belevingsmarkt* (experience market) numerous companies will present multiple applications of material streams from the water chain. The guests will have the chance to take a close look at these products and learn about the innovation processes behind them. We will also organise a competition for students, who will be challenged to come up with ideas for even more sustainable applications.



International projects

AquaMinerals is involved in three European-funded projects: P-Trap (phosphorus-iron nexus), Waterfabriek Wilp (physical-chemical wastewater treatment) and NextGen (upscaling of successful circular projects). We are also one of the clients in an international project on aluminium sludge, which Allied Waters both initiated and is running. These projects are slightly longer than others, because they first focus on organisational and technical questions. But in 2020 we will start getting to work on the material streams themselves. Although most of the projects are scheduled to run into 2021, we expect to start seeing the initial results in 2020.

Important certificates as recognition

The material streams from the water chain have already found many and new applications. These frequently require meeting quality standards, which are usually contained within certifications. For example, we currently hold a KOMO certificate for the processing of concrete materials, a GMP+ certificate for the use of calcite in feed, and a KIWA Water Mark accreditation for the use of calcite in drinking water production. In 2020 we expect to receive two new important certificates: one for applications in consumer nutrition, and a cradle-to-cradle certification recognising the sustainability and circularity of our materials.

Business cases for the reprocessing of raw materials

High-value applications require high-quality, controlled and reliable raw materials. In many instances this means that the materials have first to be reprocessed. For example, the drying, grinding and sterilising of calcite into a raw material for the feed sector, or for use in the softening process at the drinking water companies themselves. A further instance is the reprocessing of WWTP finescreen screenings into high-value cellulose. Business cases have now been elaborated for different chains, and we are seeing both traditional as well as new market players becoming involved. In cases where 'the market' is not (yet) ready to move, but where the water sector nonetheless feels steps need to be taken, we see possibilities of the sector taking on the challenge itself. AquaMinerals presents business cases to the shareholders to help them make sound decisions in this regard.



Tonnage rises, turnover rises faster

In 2020 the tonnage of materials AquaMinerals delivers to the market will rise slightly. This will be almost entirely related to the supply of 'new' streams from the Water Authorities, and particularly of course from our three participants. The tonnage from the drinking water companies will decrease for some material streams, mainly because of the improved dewatering of sludges, which is a positive development from the perspective of quality, costs and the environment. The turnover will increase relatively fast as a result of the increased transport and contracting expenses, but primarily because the new volumes from the Water Authorities represent a relatively big negative value.

Keep an eye on our website

New ideas demand lots of perseverance in our work. Carrying out research, bringing together stakeholders, overcoming obstacles (technical, economic, legal, regulatory, etc.), making and optimising test batches, and configuring supply chains takes a lot of time. But it also means that we have a precise idea of what lies ahead. In 2020 we expect to report breakthroughs in the agro, food and feed, industry and water sectors in particular. We will keep you updated on developments via www.aquaminerals.com and our social media channels.

Governance, financial policy and risk management

Governance

According to the statutes of the AquaMinerals company, the most important powers are vested in the managing director and the Supervisory Board (SB). The General Meeting of Shareholders (GMS) appoints the SB members upon the recommendation of the SB; the SB appoints the managing director.

The managing director leads the company, is responsible for achieving its objectives, the strategy and associated risk profile, the financial results and societal aspects. In this regard, he is accountable to the SB in its role as supervisor, and to the GMS as the economic proprietors of the company. He provides both entities, in a timely manner, with all information they need to exercise their tasks.

AquaMinerals is not obligated to implement the principles and best practice provisions of the Dutch Corporate Governance Code. Nonetheless, the levels of transparency and responsibility established by the Code fit seamlessly without objectives and operational management. To reflect in more detail the principles of the Governance Code, in 2011 various regulations and statutes were implemented or adjusted and, in 2012, the treasury statute was added.

Financial policy

Treasury

In accordance with the treasury statute, the final dividend distribution test has been instituted. On this basis, the management will assess whether the company, following a distribution made to the shareholders, is able to continue paying its due debts. This assessment indicated that no dividend distribution can be made, because one of the conditions, a solvency of more than 30%, cannot be satisfied. The positive cash flow from business operations was added to savings. In 2019 AquaMinerals had no deposits or investments, nor did it lend any funds to third parties. In 2019, the bank guarantee of € 143,240 was released.

Liquidity risk

The quick ratio per 31 December 2019 was the same as it was in 2018, that is, 1.4, and thus far above the standard target of 1.2. The solvency at the reporting date was 27.2%, that is, 4.2% lower than year-end 2018. The solvency ratio had therefore fallen under the standard target of 30%. The average settlement period by clients increased from 46 days in 2018 to 50 days in 2019. The average settlement period of AquaMinerals compared to 2018 rose by 2 days to 39 days.

Resilience

The resilience level of AquaMinerals is set at one annual salary of full-time employees, with a minimum of € 100,000. Per 31 December 2019, this amounted to € 1,207,000. At the same time, shareholders' equity amounted to € 1,298,713.

Risk management

Risk management forms part of AquaMinerals' management model, and is discussed on a regular basis with the SB. Since 2017, we have applied a new risk-inventory system, which gives us a better, more transparent and reproducible picture of the priority risks. In 2019 we identified the following key risks.

Risk 1: Keeping up organisationally with the (strategic) growth

AquaMinerals is growing steadily. This growth is based partly on our traditional work, but mostly on new activities. This calls for organisational adjustments, both in capacity as well as procedures and coordination. We had predicted this growth in our Business Plan 2019-2021 and expanded our capacity accordingly. We also adjusted several of our procedures. The creation of an order directly in the planning of a shipment (see page 9) will, in particular, ensure faster and more accurate processing.

Risk 2: Shortage of qualified staff

The activities of AquaMinerals demand specialised staff in a wide variety of areas. If we do not have the right expertise in-house, we might not be able to meet the participants' expectations, and we expose ourselves to legal, commercial and technical risks. In order to ensure continuity, in 2018 and 2019 we worked hard on creating a flexible external support structure for different departments, in the event of workload increases or decreases. Following thorough analysis, we also posted some job vacancies. Despite the difficult labour market, we succeeded in making a number of good hires.

Risk 3: Streams for which no good destination has (yet) been found

The existing and new participants have a certain expectation that AquaMinerals will find valuable destinations for their residual streams. But in some cases it takes a long time to create new material chains, sometimes to the point that the participants' expectations are not realised. For this reason we regularly share views with each participant, both regarding strategy and operations. Also, for most of the participants, individual roadmaps have been elaborated with a view to clarifying both the objectives and actions. And we try, more than ever, to involve the water companies substantively in specific valorisation projects.

Risk 4: New and different product liability

As the applications become increasingly high-value and the quality requirements more stringent, the product liability risk increases. AquaMinerals has reached agreements with suppliers, service providers and contractors about the quality, quantity and supply assurance, and procedures have been developed for monitoring purposes. Supply, processing and applications are however evolving so fast that there is a risk that the safeguards will not work well. Therefore, for every new agreement or procedure, we control whether the assurance is sufficient. In 2019 we also made adjustments to the purchasing conditions, in close consultation with our participants' lawyers of course. These should be ratified by the GMS in 2020.

Effect of coronavirus

The coronavirus has not yet had any noticeable negative effect on turnover, results or cashflow in 2020. Although we do not expect effects of this kind over the short term, we cannot, given the uncertainty about the duration and consequences of the crisis, exclude the possibility that we will be faced with negative effects over the longer term.

Supervisory Board

The Supervisory Board (SB) oversees the policy of the managing director and provides him with advice. Its supervision mostly concerns the financial performance and developments, regulatory compliance and risk management.



'AquaMinerals is storming ahead. Not only are several Water Authorities becoming new shareholders, but they are focusing more and more on the entire value-increase chain for residuals. If this calls for extra processing, then AquaMinerals invests in research and business development. AquaMinerals therefore not only looks at things differently, it also looks ahead.'

Roelof Kruise, SB

SB composition on 31 December 2019

Name	Profile	Appointed	Reappointed	Resignation	Functions and other functions
Mr R. Kruise (1956) Chairperson	Managerial	31 December 2014	31 December 2017	31 December 2020	General Director, Waternet Foundation; Member SB, KWR; Chairperson/Member SB, De Balie; Member of the Board, International Water Association; Chairperson, Aquatec Advisory Committee; Member of the Management Board, Amsterdam International Water Week; Member SB, Leading Utilities of the World; member Foundation Board, World Waternet; Member of the Board, Vewin.
Mr J.E. Janssen (1969), Vice-chairperson	Legal	1 July 2016	1 July 2019	1 July 2023	Lawyer/partner, Stek Advocaten
Ms M. Demmers (1967), member	Business and innovation	31 December 2016	31 December 2019*		Director-administrator, Natuur & Milieu; Supervisor, Rli; Member SB, Drift; Manager SKAO; Member of Strategic Advisory Council, TNO SA&P.
Ms J. Spoeltman (1969), member	Financial	15 March 2019	(possible) 15 March 2023		Director, Grootzakelijk. Rabobank kring, Middle Brabant; Member SB, Stichting De Nieuwe Arbeid Noord Oost Brabant (from 2018).

* Reappointment took place at the General Meeting of Shareholders on 24 June 2020.

SB activities in 2019

The Supervisory Board met on four occasions in 2019 and addressed the following items:

- monitoring the results of the company in light of the budget and the Business Plan 2019-2020;
- recruitment of a new supervisor with a financial profile;
- accession of Hoogheemraadschap Hollands Noorderkwartier to AquaMinerals;
- determination and monitoring of actions related to priority risks;
- determination of the 2018 annual figures and profit appropriation for that year;
- updating of the SB regulations, including the extension of the nomination period from three to four years;
- budget and annual plan for 2020;
- determination of the CRS policy;
- determination of the 'Water Authorities roadmap';
- determination of position in strategic developments and possible consequences, particularly concerning a new calcite factory and/or an installation for reprocessing finescreen screenings into high-value cellulose;
- the organisational development in relation to the growth in volume, turnover and activities.

Activities of the GMS in 2019

The General Meeting of Shareholders was held twice in 2019, and took the following decisions:

- approval of the Annual Report and financial statements for 2018;
- discharge of the managing director and his management and members of the SB for their supervision during fiscal year 2018;
- the profit appropriation for 2018;
- approval of the accession of Hoogheemraadschap Hollands Noorderkwartier to AquaMinerals, and the issuance of new shares in the name of this new participant;
- the appointment of Ms J. Spoeltman, and the reappointment of Mr J.E. Janssen, as members of the SB;
- determination of the revised statutes;
- approval of the new CRS policy;
- approval of the annual plan and budget for 2020;
- determination of the 'Water Authorities roadmap';
- a preferred scenario for strategic developments, and their associated consequences, for the said new calcite factory and a cellulose reprocessing installation.



From left to right: Marjolein Demmers, Roelof Kruise, Olaf van der Kolk, Jan Erik Janssen and Jacqueline Spoeltman.

Explanatory notes on the Financial Statements

Principles of evaluation

General

AquaMinerals B.V. (with its registered office in Rijswijk ZH, Chamber of Commerce number 30130247) is domiciled at Nieuwegein, Groningenhaven 7, 3433 PE.
The company's most important activity is relieving the drinking water companies and the Water Authorities of the residuals generated by the production of drinking water and the treatment of domestic wastewater.
The company has prepared its financial statements in accordance with the legal provisions of Title 9, Book 2 of the Dutch Civil Code.

Comparative figures

The comparative figures are only restated for comparative purposes.

Intangible fixed assets

The intangible fixed assets are valued at acquisition prices minus depreciation.
The depreciation period is five years.
A legal reserve equivalent to the research and development capitalised expenses is included.

Tangible fixed assets

The tangible fixed assets are valued at acquisition prices and depreciated straight-line on the basis of the expected operating life of the asset concerned.
The rate of depreciation applied is 20%.

Cash and cash equivalents

The cash and cash equivalents are valued at nominal value.
Unless otherwise indicated, these are freely available.

Other assets and liabilities

These are valued at nominal value.

Receivables

Receivables are stated initially at real value, including transaction expenses, and subsequently stated at the amortised cost price, less provisions for uncollectable debts.

The initially stated real value and the amortised cost price are equal to the nominal value, unless there is a question, in the initially stated value, of transaction expenses, premiums, or discounts, and other disparities between the real value and the nominal value.

Principles for the determination of the result

Earnings, expenses and interest are attributed to the period with which they are associated.
The earnings concern the passed-on disposal expenses plus the realised earnings (positive and negative) from clients and consulting services provided.
The direct disposal expenses concern outlays for extraction, transport, storage and analysis.

Pension expenses

The pension obligations towards employees fall under an industry pension fund. Payable pension contributions are incorporated into the profit and loss account in the year with which they are associated. Furthermore, an assessment is made as to whether, besides the premium, the employer has any other obligations related to the performance or insurance agreements, or to commitments to employees. In the event, a provision will be created. If the term of these obligations stretches over several years, the provision will be valued at cash value, calculated using an interest rate based on the average interest earned on high-grade corporate bonds.

Liabilities (other than premium settlements) related to the performance or insurance agreement, such as profit sharing and restitutions following a decision of the pension fund, will be included in the balance sheet only if their receipt is irrevocably established.

The coverage ratio of the pension fund (ABP), per 31 December 2019, was 97.8% (2018 97%).
The recovery plan aims to achieve a coverage ratio of 128.2% at the end of 2027. This will not require taking any drastic recovery measures.

Corporate tax

Taxes are calculated based on prevailing rates on the pre-tax result, according to the profit and loss account, taking into consideration the permanent differences between the fiscal profit calculation and the profit calculation according to the annual financial statements.

Balance sheet per 31 December 2019

(after profit appropriation following recommendations)

	31-Dec-2019	31-Dec-2018
	€	€
ASSETS		
Fixed assets		
Intangible fixed assets	37,152	20,000
Tangible fixed assets	39,153	8,766
Current assets		
Receivables and accrued income	3,768,010	2,683,896
Cash and cash equivalents	929,271	841,747
	4,773,586	3,554,410
LIABILITIES		
Shareholders' equity		
Issued and paid-up capital	559,649	535,217
Share discount	11,923-	11,923-
Share premium	108,258	82,063
Legal reserves	10,000	20,000
Other reserves	632,727	491,905
	1,298,711	1,117,262
Current liabilities		
Current liabilities and accrued liabilities	3,474,875	2,437,148
	4,773,586	3,554,410

Explanatory notes on the balance sheet

	31-Dec-2019 €	31-Dec-2018 €		31-Dec-2019 €	31-Dec-2018 €
ASSETS			Current assets		
Fixed assets			Receivables and accrued income		
Intangible fixed assets			Receivables	3,640,907	2,574,481
Book value per 1 January	20,000	30,000	Accrued income	127,103	109,415
Plus: investments	27,152	-		3,768.010	2,683,896
	47,152	30,000			
Minus: depreciation fiscal year	10,000	10,000	<i>Receivables</i>		
			Nominal value	3,640,907	2,574,481
Book value per 31 December	37,152	20,000			
Tangible fixed assets					
Inventory			<i>Accrued income</i>		
Book value per 1 January	8,766	8,051	Earnings yet to be received	9,057	15,584
Plus: investments	34,324	4,247	Pre-paid contract costs	4,715	24,031
	43,092	12,297	Pre-netted earnings on stocks	113,331	69,800
Minus: depreciation fiscal year	3,939	3,531			
				127,103	109,415
Book value per 31 December	39,153	8,766			
Total depreciation	16,712	12,773			
Decommissioned assets	-	-	Cash and cash equivalent		
			Deutsche Bank, current account	22,447	72,872
Cumulative depreciation	16,712	12,773	Deutsche Bank, savings account	0	166,535
			Rabobank, current account	284,014	
			ING payment account	20,557	97
			ING savings account	602,243	602,243
				929,261	841,747

In 2019 a bank guarantee was terminated, and a switch was made from Deutsche bank to Rabobank.

LIABILITIES

Shareholders' equity

Issued and paid-up capital

Status per 1 January (issued)
Share issue *

Status per 31 December (issued)

In 2014, this amount was adjusted in connection with the purchase of shares in 2003.
* In 2015, De Watergroep acquired 1028 shares in AquaMinerals B.V. for € 75,680.
In 2018, two Water Authorities acquired 1,319 shares in AquaMinerals B.V.
In 2019, HHNK acquired 537 shares.

The authorised share capital amounts to € 910,000 divided into 20,000 shares of a nominal value of € 45.50.
Of this amount € 559,650.50 is paid up.

Share premium

Status per 1 January
Change during fiscal year

Status per 31 December

The change in 2015 resulted from the sale of:
1,242 shares in 2011, with a premium of € 4.95 per share.
1,028 shares in 2015, with a premium of € 28.12 per share.
1,319 shares in 2018, with a premium of € 35.64 per share.
537 shares in 2019, with a premium of € 48.78 per share.

Share discount

This item arose through the sale of 568 shares with a discount of € 21.00 per share.

Legal reserves

Research and development reserve

Acquisition value
Addition to the reserve
Withdrawal from the reserve

Status per 31 December

Off-balance-sheet items

AquaMinerals has signed a rental contract for its premises up until 30 June 2022, and contract for lease cars. Obligations for less than 1 year amount to € 118,493, 1-5 years to € 190,897, and more than 5 years to € 0.00.

31-Dec-2019
€

31-Dec-2018
€

Other reserves

Status per 1 January
Sale of own shares
Change in allocation of legal reserve R&D
Plus: profit allocation

Status per 31 December

Current liabilities

Current liabilities and accrued liabilities

Payables

Taxes and national insurance contributions
Other debt and accrued liabilities

Under the payables position per 31-12-2019, there are payables to other legal entities and companies that have a participation in the legal entity of € 1,424,096.

Taxes and national insurance contributions

Value added tax
Corporate tax
Pension contributions
Payroll tax and national insurance contributions

Other debt and accrued liabilities

Accrued expenses
Earnings yet to be settled
Revenues received in advance on depots
Received in advance in connection with future REACH registration
Received in advance for R&D projects
Holidays
Holiday pay reserve
Collective Labour Agreement obligations

Important events since balance-sheet date

The coronavirus has not yet had any noticeable negative effect on turnover, results or cashflow in 2020. Although we do not expect effects of this kind over the short term, we cannot, given the uncertainty about the duration and consequences of the crisis, exclude the possibility that we will be faced with negative effects over the longer term.

Profit and loss account for 2019

	2019 €	2018 €
Earnings		
Turnover residuals	10,953,098	8,492,003
Consulting	181,121	178,778
	11,134,219	8,670,781
Shareholders' annual contribution	1,467,904	1,169,800
Total earnings	12,602,123	9,840,581
Operating expenses		
Direct disposal expenses	5,578,686	4,769,247
Acceptance expenses	2,137,179	819,567
Earnings distributed to shareholders	2,940,303	2,451,595
	10,656,168	8,040,409
Gross turnover result	1,945,955	1,800,172
Operating expenses		
Personnel	1,197,124	1,004,176
Depreciation	13,939	13,531
Cost of sales and PR	107,509	106,074
Research and consulting costs	211,038	261,574
Premises	59,220	48,137
Supervisory Board	30,002	36,000
Other operating expenses	168,595	126,884
	1,787,427	1,596,375
Total expenses	12,443,595	9,636,784
Operating result	158,528	203,797
Interest income/expenses	122	3-
Pre-tax result	158,650	203,794
Corporate tax	27,828	40,950
Result	130,822	162,844

Explanatory notes on the profit and loss account

	2019 €	2018 €		2019 €	2018 €
Earnings			Operating expenses		
Turnover residuals			Personnel		
Settled disposal/acceptance expenses shareholders	7,095,181	5,179,937	Direct salary expenses	746,547	662,110
Settled disposal expenses non-shareholders	411,550	309,739	National insurance contributions	145,544	113,463
Earnings (post)sale residuals shareholders	3,190,121	2,780,034	Pension contributions	117,257	86,089
Earnings (post)sale residuals non-shareholders	256,246	222,294	Indirect salary expenses	32,895	19,678
	10,953,098	8,492,003	Short-term staff	179,724	158,696
			Sick-leave allowance	24,843-	35,861-
Consulting				1,197,124	1,004,176
Consulting for shareholders	30,062	84,019			
Consulting for non-shareholders	151,059	94,759			
	181,121	178,778			
			Staff		
Total earnings	11,134,219	8,670,781	In 2019 there was an average of 14 staff members, 10 of whom were permanent staff and the remainder short-term.		
Direct disposal and acceptance expenses			Cost of sales		
	7,715,865	5,588,814	Travel and accommodation costs	76,925	62,780
			Contributions	4,808	7,717
Turnover of non-shareholders of AquaMinerals B.V.	818,855	626,792	PR	25,776	35,577
				107,509	106,074
Idem in percentage	7.4%	7.2%			
			Research and Consulting costs		
			Perspective: Financial	46,786	20,660
			Perspective: Client	77,567	122,963
			Perspective: Internal processes	17,200	31,050
			Perspective: Innovation/Learning	69,484	86,901
				211,038	261,574

Other information

Statutory profit appropriation

Article 27 of the company statutes establishes the following provisions regarding the profit appropriation:

- 1 The profit shall be at the free disposal of the General Meeting of Shareholders. The General Meeting of Shareholders may reserve an amount from the profit established in the financial statements that it has approved.
- 2 The company may only make distributions to the extent that its shareholders' equity exceeds the amount of the issued and called-up part of the paid-up capital, plus the reserves to be maintained in accordance with the law.
- 3 Profit distribution shall only be made after the adoption of the financial statements from which it appears that such distribution is allowed.
- 4 Shares or certificates held by the company, or shares and certificates in which the company has right of usufruct, shall not be included in the profit appropriation calculation.
- 5 The General Meeting of Shareholders may decide to make interim distributions. The decision to pay an interim dividend from profits during the fiscal year in course can also be taken by management. Distributions referred to in this item may only be made if the provisions of item 2 of this article are met.
- 6 Unless the General Meeting of Shareholders establishes otherwise, the dividends shall be paid within 30 days after being approved.
- 7 The General Meeting of Shareholders may decide to pay dividends, in part or in whole, in a form other than cash.
- 8 A shortfall may only be settled through the reserves established by law inasmuch and to the extent that the law permits.
- 9 In the event that the total amount of the issued and called-up part of the capital, plus the reserves to be maintained in accordance with the law, is less than the most recently established legal minimum capital level, the company must maintain a reserve equal to the difference between the amounts.

Appropriation of 2019 result

In anticipation of the decision to be taken in this regard by the General Meeting of Shareholders, the 2019 result has been added to other reserves.

This decision, which has yet to be taken, has already been incorporated into the 2019 financial statements.

ACCOUNTANTSVERKLARING

/mth

INDEPENDENT AUDITOR'S REPORT

To the shareholders of AquaMinerals B.V.

A. Report on the audit of the financial statements 2019 included in the annual report

Our opinion

We have audited the financial statements 2019 of AquaMinerals B.V. based in Nieuwegein.

In our opinion, the accompanying financial statements give a true and fair view of the financial position of AquaMinerals B.V. as at 31 December 2019 and of its result for 2019 in accordance with Part 9 of Book 2 of the Dutch Civil Code.

The financial statements comprise:

1. the balance sheet as at 31 December 2019;
2. the profit and loss account for 2019; and
3. the notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of AquaMinerals B.V. in accordance with the Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore we have complied with the Verordening gedrags- en beroepsregels accountants (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Ephasis of the impact of coronavirus

We draw attention to the paragraph 'Post balance sheet events' in the 'Other Disclosure' which describes the impact of the coronavirus after the date of the financial statements. Our opinion is not modified in respect of this matter.

/mth

B. Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- the management report;
- other information as required by Part 9 of Book 2 of the Dutch Civil Code.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements;
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is substantially less than the scope of those performed in our audit of the financial statements.

Management is responsible for the preparation of the management report in accordance with Part 9 of Book 2 of the Dutch Civil Code and other information as required by Part 9 of Book 2 of the Dutch Civil Code.

C. Description of responsibilities regarding the financial statements

Responsibilities of management for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the accounting policies selected and disclosed by the entity, as set out in note Principles of financial reporting to the financial statements. Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, management is responsible for assessing the company's ability to continue as a going concern. Based on the financial reporting framework mentioned, management should prepare the financial statements using the going concern basis of accounting, unless management either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so.

Management should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The supervisory board is responsible for overseeing the company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We have exercised professional judgement and have maintained professional scepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit included among others:

- identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control;
- evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management;
- concluding on the appropriateness of management's use of the going concern basis of accounting, and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause a company to cease to continue as a going concern.
- evaluating the overall presentation, structure and content of the financial statements, including the disclosures; and
- evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the supervisory board the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identify during our audit.

We provide the supervisory board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Lelystad, 29 May 2020
mth accountants & adviseurs b.v.

Was signed

drs. B.M. Tinge RA

Colophon

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Entered in the Commercial Register
of the Chamber of Commerce
in Utrecht under number 30130247

Editing, design and production
Skrebbel+Sketch, Chantal Wuijster, Rosmalen
Melding ontwerp enzo, Oisterwijk

Photography
Bert Janssen, Maastricht
FMD BV, Dirk van Straaten
Naïf

Printing
CS Grafimedia, Schijndel

June 2020



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