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WORKING FOR THE FUTURE

The REMONDIS Group magazine

REMONDIS AKTUELL

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**REMONDIS
AKTUELL**

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Clean bin collections

Heading towards climate-neutral,
emission-free waste collections



Smart containers

REMONDIS tests digital bin fill sensors
in Stuttgart's bottle banks

Combating drought with compost

This valuable soil improver can retain five
times its own weight in water

REMONDIS in Sweden

Transferring know-how to grow innovation
and digitisation

In the bag: the EU's Circular Economy Package

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Promoting young talent at the RETHMANN Group

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Recycled aggregate must be the preferred choice

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Dear Readers!

"I believe in horses. Automobiles are a passing phenomenon." These are the words said to have been uttered by the German Kaiser, Wilhelm II, at the time when mobility was going through a radical change. No-one can say for sure whether he really said this or not but it is a quote that is often used as an example of people badly misjudging the importance of an invention – and not just by futurologists. Today, mobility is once again undergoing a radical change. In some areas of the country, air quality has deteriorated so much that politicians, industrial businesses and consumers are being forced to rethink the way they act, in particular in large cities. The diesel scandal has simply further aggravated the situation. The first councils have begun banning old diesel cars from using the roads where air pollution is highest. At the same time, city planners are focusing almost entirely on creating living space and high quality office buildings. In contrast, tradespeople and commercial businesses, such as recycling firms, are gradually being pushed further and further outside the city. Their work though should continue to be quiet, free of dust and, wherever possible, without CO₂ or NO_x emissions.

It's definitely time to start thinking about possible alternatives. What could be better than using one of the country's waste streams – i.e. organic waste – as a source of post-fossil fuel and, by doing so, enable waste collections to be carbon-neutral and practically free of fine particulate and NO_x emissions? REMONDIS has begun a pilot project near Cologne to do just this and is currently testing six vehicles run on biogas.



Thomas Conzendorf, REMONDIS Board Member

The recycling industry has a new market player: the Schwarz Group (Lidl), which has an annual turnover of EUR 96.7 billion (2017) – bigger than the whole of the German recycling sector put together. Earlier this year, the Schwarz Group's subsidiary, Green Cycle, purchased Tönsmeier, the fifth-largest recycling company in Germany, acquiring a volume of sales three times bigger than all of the acquisitions made by REMONDIS in 2016 and 2017. Industry experts believe that the Schwarz Group will also enter Germany's 'Dual System' market (kerbside collection of sales packaging) in the not too distant future.

There is so much happening in the German recycling market at the moment – a market which, according to the "Status Report on the German Circular Economy", has around 10,800 companies competing against each other. While none of the private sector firms has a monopoly in any area of the waste management and recycling industry, the trend towards councils renationalising waste services continues unabated leading to the creation of regional monopolies. As a result, the private sector's share of the market is also slowly decreasing. At present, for example, its share of conventional waste collection services lies at around 50% of the overall market.

As always, we hope you enjoy reading this latest issue of REMONDIS aktuell.

Yours


Thomas Conzendorf

Clean waste collection services

PILOT PROJECT TESTS CARBON-NEUTRAL REFUSE COLLECTION TRUCKS



Two inventions have radically changed mobility over the course of history: when the horse and cart were brought together and the combustion engine. The latter, which Kaiser Wilhelm II had first believed to be nothing more than a technical toy, had such a profound impact on society at the beginning of the 20th Century that it is practically impossible to imagine life without this technology. Today, mobility is once again undergoing a radical change. With the country in danger of not reaching its climate goals and a ban on diesel vehicles becoming a real threat, the recycling industry is on the look-out for clean, eco-efficient trucks. In their search for the best possible solution, REMONDIS has now joined forces with GVG Rhein-Erft, Zukunft ERDGAS and IVECO to start a pilot project that aims to significantly reduce emissions and noise pollution caused by refuse collection vehicles.

"I believe in horses. Automobiles are a passing phenomenon."

Kaiser Wilhelm II completely misjudged the impact cars would have on mobility

A number of very different approaches have been looked at to develop "clean" trucks, just as there have been for cars. With the politicians pushing for e-mobility, the most obvious solution would appear to be battery-run electric lorries. There are a few problems here however. Less material can be loaded onto the truck because of the weight of the battery. Which means that around 30 percent more vehicles would be needed to transport the same amount of waste. What's more, electric trucks are far more expensive to buy than refuse collection trucks run on diesel. They are also unable to travel so far and, of course, up to ten hours are needed to recharge their batteries. Not the most flexible solution then. Having said that, though, REMONDIS is continuing to keep a close eye on the way this technology is progressing. E-mobility may certainly become an interesting option if – eventually – the batteries become lighter and run for longer, if less time is needed to recharge the batteries and if there is not such a big difference in price between electric and diesel-fuelled trucks. This is, however, unlikely to happen in the near future.

REMONDIS and its partners have, therefore, begun their first pilot project to test climate-neutral waste collection trucks run on biogas. Compared to diesel-fuelled trucks, these eco-friendly vehicles could help improve air quality and reduce noise pollution in cities

IVECO's biogas-fuelled truck:

up to
5 decibels
quieter

((?))



The fuel biomethane (also known as biogas) has been produced by the recycling industry for a while now – a sign of its modern and innovative focus. Over the last few years, REMONDIS and a number of other companies have succeeded in using state-of-the-art digester facilities to transform household organic waste into carbon-neutral, climate-friendly biomethane. Previously fed into the gas network to produce electricity and heat, this biogenic substance can now also be used to fuel waste collection vehicles thanks to a pilot project set up by REMONDIS and its partners.



Dust

and particulate matter emissions are so low, they are hardly detectable

Carbon-neutral waste collections with practically no particulate matter or NO_x emissions and much quieter to boot. The advantages of biogas-run vehicles are in the air

90%
fewer carbon emissions



The project was officially presented during a press conference: (from left to right) Lars Nehrling, Head of Municipal Sales at REMONDIS, Werner Abromeit, Managing Director of GVG Rhein-Erft, Klaus Voussen, Spokesperson of the Transport Committee of the State Parliament of North Rhine-Westphalia and Member of the State Parliament, and Reinhard Hohenstein, Managing Director of REMONDIS GmbH Rheinland



E-mobility? Biogas? Hydrogen? It's not clear yet which technology will win the race and become the preferred choice in the future

One of the partners involved in the project is IVECO which has provided this modern vehicle technology. The technical performance of IVECO's biogas-fuelled vehicles is just as good as a waste collection truck run on diesel. What's more, their ecological footprint is much better: 90% fewer carbon emissions and approx. 60% less nitric oxide – and they are up to five decibels quieter. The dust and particulate matter emissions are so low, they are hardly detectable at all. Which all means that biomethane is a potential short-term solution for those looking for a fuel that not only meets but also clearly falls below the Euro 6 nitric oxide and particulate matter emission limits. Over the long term, this fuel – which is based on a raw material that is both sustainable and readily available – could facilitate climate-neutral mobility. Experts expect the volume of organic waste collected in Germany to increase greatly in the future with local authorities now being obliged by law to distribute organic waste bins to ensure this waste stream is collected separately. At present, 9 TWh of biomethane are being produced from biomass across Germany every year. Even though this waste stream must be collected separately, however, four million tonnes of organic waste are still being thrown into the residual waste bin. Were more to be made of this material, then up to 100 TWh of biomethane could

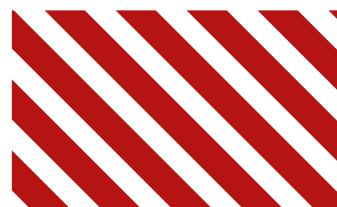
be generated each year. Experts believe that this would be enough biomethane to fuel 50% of all commercial vehicles on Germany's roads.

Pilot project near Cologne

As is so often the case, a successful idea involves the meeting of minds. The person at REMONDIS behind this particular project was Jürgen Mauthe, managing director of the company's Rhineland division. He was the first to see the potential of the biogas pilot project during a meeting with IVECO in September 2017. He then brought in Lars Nehrling, head of municipal sales, and Nino Heidenreich, project manager for energy plants at REMONDIS, to take a closer look at the idea. Collaborating closely with Dr Ansgar Fendel, the managing director in charge of plant technology, the two quickly set up a network that included Josef Holtermann and Stefan Bülskemper, the fleet managers at REMONDIS and its sister company Rhenus, Volker Drexler, the operations manager responsible for the test region Erftstadt, and Wolfgang Klein, logistics manager in Cologne, to name just a few.

And the team can be proud of their work. The partners began testing these climate-neutral trucks in Pulheim and Erftstadt (near Cologne) on 01 August.

The vehicle's ecological footprint stands out from the crowd: 90% fewer carbon emissions, 5 decibels quieter and approx. 60% less nitric oxide



4 million

tonnes of organic waste are still being thrown away into the wrong bin

To begin with, these tests will involve six IVECO vehicles. The drivers can fill up with this green fuel at a new autogas pump which REMONDIS and GVG have installed in Hürth with the help of Zukunft ERDGAS. The time needed to fill up the tanks will not be much longer than with any other vehicle as the trucks are equipped with fast fill technology. All in all, the drivers need around 8 minutes to fill the gas tanks. When used to collect waste, the vehicles can then cover approx. 200km. Eight gas tanks are able to hold 640 litres of gas, with the fuel weighing just 88kg. While diesel-fuelled trucks are able to cover longer distances (approx. 400km more), this eco-friendly alternative is more than able to complete a standard waste collection route in a medium-sized town without having to stop at a filling station. Paris, London and other large European cities have been using trucks run on natural gas for many years – demonstrating that this clean technology can be used in large built-up areas as well.

Other regions have already shown an interest in the project. Exploratory talks have, for example, begun in the north of Germany. The Polish government is also observing REMONDIS' pilot project with growing interest having recently begun the process of drawing up a new law on e-mobility and alternative fuels for its country. Düsseldorf-based Awista, a public private partnership between the city council and REMONDIS, have already decided to purchase three biogas-fuelled refuse collection trucks. Further projects are expected to follow in Cologne, Bonn and Münster.

Lars Nehrling, Head of Municipal Sales at REMONDIS, is confident that the 640l tank in IVECO's "Stralis 330 ES Natural Power" truck will be able to cover two shifts

TECHNICAL INFORMATION

These new vehicles have a three-axle chassis with a steerable trailer axle to improve manoeuvrability. The 26-tonne trucks have been fitted with a 330 PS engine. As the nature of the work means these trucks are constantly stopping and starting, they have all been fitted out with an Allison gearbox to reduce wear and tear. This also enables the drivers to focus completely on the traffic around them. Safety is also at the top of the list of priorities: at REMONDIS' request, IVECO has installed a turning assist system. A screen is activated in the A pillar when the indicator is turned on, enabling the drivers to check their blind spot.

It is already possible to see how this technology could develop. Firstly, it has shown that it is possible to have carbon-neutral waste collection services across the whole of Germany. However, for this to happen, politicians need to show more support for the idea. Local and city councils must make it clear that they want to have clean forms of transport by including them in their tenders and rating them more positively. Last but not least, such trucks must be affordable so that they do not impact negatively on fees and charges. Being an expert for carbon-neutral waste logistics, REMONDIS is there to help with its dedicated staff and practical know-how.

Support from politicians is essential here. Local authorities must decide to actively support cleaner forms of transport and include these in their tenders





1,000

bottle banks have been fitted out with the new sensor

Smart Stuttgart: Intelligent bottle banks good for locals and the environment

REMONDIS TESTS SMART BINS TO MEASURE FILL LEVEL AND AUTOMATED SYSTEMS TO PLAN COLLECTION ROUTES

The areas around bottle banks are not always a pretty sight. These bins are often overflowing at busy times of the year, for example during events like the recent World Cup or at Christmas and New Year – something that can be really annoying for local residents. These images are to be banned from Stuttgart forever thanks to smart technology. This April, REMONDIS began testing a new digital system for the city's bottle banks that automatically transmits information about bin fill levels – a system that should prevent the bottle banks from ever overflowing again.

All in all, there are 1,000 bottle banks at around 330 locations spread across the whole of the city and all of them have been fitted out with the new sensor. Every hour, this sensor uses ultrasound to measure the bin's fill level and then transmits the data via a mobile radio network to a central office that is connected to REMONDIS' branch in Stuttgart. If bottle banks are almost full, then the trucks' collection routes are altered to make sure that the bins that need emptying are emptied. Other bottle banks that still have space available can be taken out of the collection route.

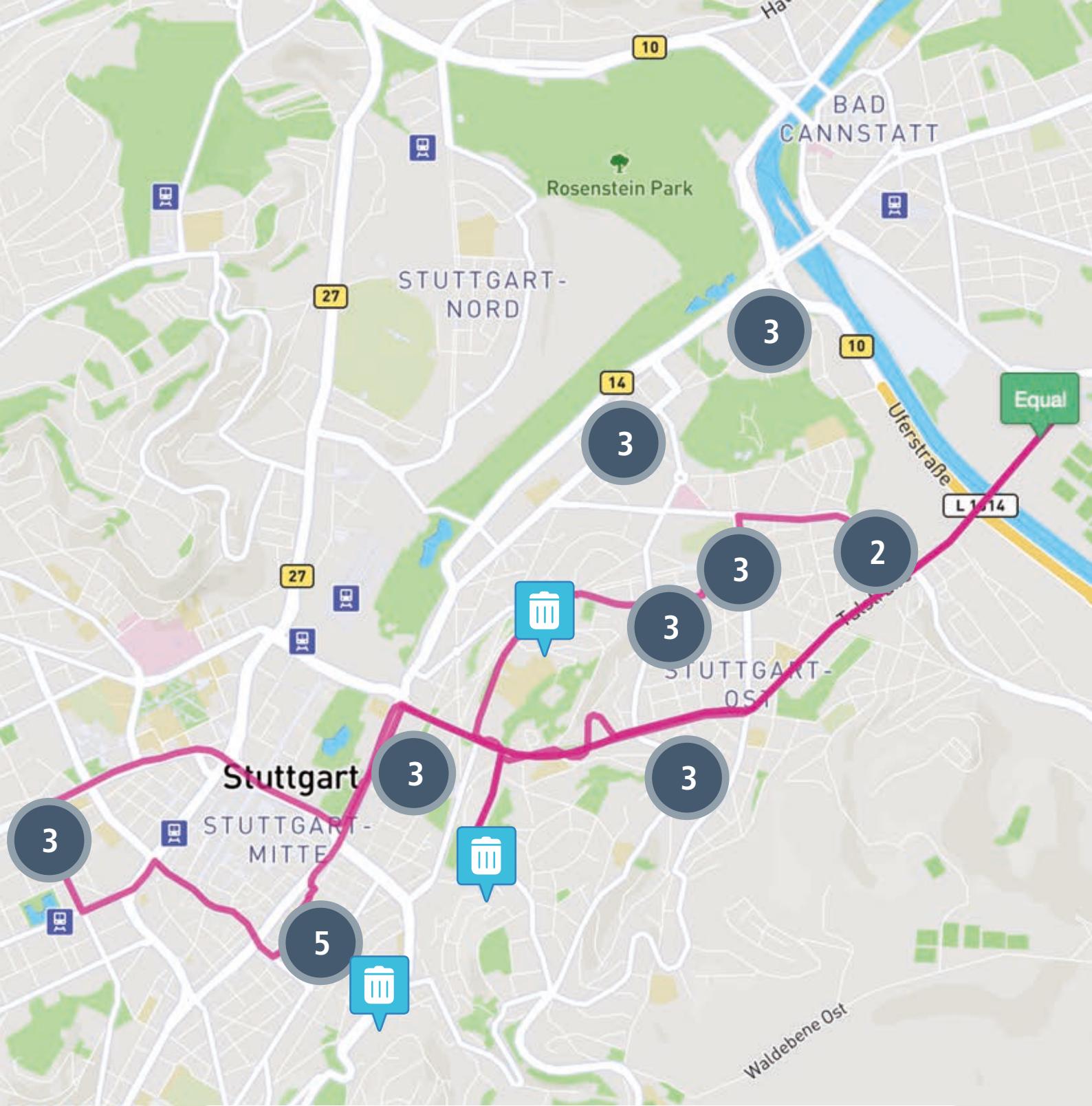
This new sensor technology, which REMONDIS Recycling GmbH has been developing together with the start-up company binando, is still in its test phase. Now that the system used to measure the fill level is working perfectly, preparations are underway to take a step further towards creating a 'smart city'.

The aim is for a self-learning algorithm to eventually be able to use the data to draw up the most efficient collection routes. The routes will then be transmitted straight to the drivers' sat nav. "This combination would mean greater flexibility, security and transparency. We are doing everything in our power to ensure this system is successfully implemented across Stuttgart," commented project manager, Marc Schubert. He also explained how the system should help highlight problem areas and make it easier to ensure the right bins are emptied at the right time. A long-term analysis of the data should also make it clear where new glass recycling locations need to be set up.

This smart system – used to collect the approx. 12,500 tonnes of old glass thrown away in Stuttgart each year – will benefit both the locals and the environment over the long term. If REMONDIS and binando's pilot project continues to progress as successfully as it has so far then up to 15% fewer collection trips will be needed, helping to ease the traffic congestion in the city. What's more, it will also mean lower carbon and nitric oxide emissions across Stuttgart.

"We are doing everything in our power to ensure this system is successfully implemented across Stuttgart."

Marc Schubert, Project Manager at REMONDIS Recycling GmbH



The route taken by the data:
from the bottle bank to
the driver's mobile device



In the bag: The EU's Circular Economy Package

TARGETS, OPPORTUNITIES AND CHALLENGES FOR THE EUROPEAN RECYCLING SECTOR AND REMONDIS' RESPONSE

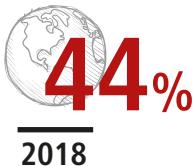
The European Circular Economy Package (CEP) has been formally approved following the vote held in the EU Parliament on 18 April. This was the culmination of three years of discussions held between the Commission, Parliament and Council on how best to increase recycling rates or – even better – reduce volumes of waste in order to protect the environment, curb climate change and conserve natural resources. New rules have been drawn up for a number of waste types which member states can now not only read in black and white but must also follow. The first step towards creating a uniform, future-oriented European circular economy has been made. It is now up to the individual countries to play their role.

By introducing the Circular Economy Package, the EU has taken its first step towards creating a better and uniform recycling sector

The EU has set ambitious goals with its new directives for municipal and packaging waste, organic waste and textiles, landfill and food waste. The higher recycling rates apply to all member states: today's municipal waste recycling rate of 44% must have increased to at least 55% by 2025 and to at least 65% by 2035. 65% of all packaging should be recycled by 2025 and 70% by 2030. Specific targets have also been set out for paper and cardboard, plastics, wood, glass and metal. What's more, the package includes a uniform, input-oriented method for calculating recycling rates. According to this system, Germany's current recycling rate of 67% – the highest in Europe – would be considerably lower.

How recycling rates should have increased by 2035

Obligatory targets are also in place for organic waste and textiles: both these waste types must be collected separately across all EU states by 2024. This is nothing new for Germany



but a major step for many of the other European countries. The amount of food being wasted should also have been reduced by 25% by 2030.

This is not all. New regulations have been drawn up for landfills. These will have a major impact on countries in the south of Europe, such as Croatia and Greece or Malta and Cyprus, where landfills still take more than three quarters of all household waste. To change this habit, the EU has decreed that a maximum ten percent of a country's household waste may be sent to landfill from 2035 onwards. The EU believes that the combination of these measures will help close product life cycles (from design, production and consumption, to collection and recycling) and, at the same time, pave the way for a more sustainable and cost-effective recycling industry. While the CEP brings hope for the future, politicians will have to take steps to ensure it is enforced if it is to be a success both at national and international level. The EU has come up with some ideas for this as well: member states that have not achieved the obligatory recycling rates within the stipulated period must inform the Commission of this and explain why. At least, that is the theory. Only time will tell how the system will work in practice.

One part of the CEP, the EU's Plastics Strategy, is turning out to be of particular importance – not least because of China's recent ban on imports. The primary goal here is to only allow plastic packaging to be used in the EU if it can be efficiently recycled, a move they hope will also help combat marine pollution. And all this should have been reached by 2030. A package of measures has been put together in Brussels to bring this about: plastic products should be more recyclable, recycling capacities should be increased and more efforts should be made to collect plastic waste separately and to grow the market for recycled plastics.



Voluntary schemes should be in place across the EU to encourage manufacturers to use this recycled material. As a result, the EU is looking for the volumes of recycled plastics used in new products to have increased to ten million tonnes by 2025.

This is a truly ambitious goal looking at the situation today. Germany leads the way at the moment when it comes to using recycled raw materials in new products but this is a mere 14 percent of all raw materials used in manufacturing. There is certainly much room for improvement. REMONDIS has been calling for a three-pronged initiative to create a system of incentives to encourage manufacturers to use recycled raw materials and for more money to be invested in improving the quality of materials produced by sorting and recycling technology.

And REMONDIS is leading by example here: its new sorting facility for household packaging waste and its new facility for recycling polystyrene at its Lippe Plant in Lünen are just two examples of many. This family-run business is constantly carrying out research and development work to find new and better recycling processes – in particular into ways of converting plastic waste into its original source material. One solution here is so-called chemical recycling. Depolymerisation is used here to break up plastics into polymers, monomers or high quality fuels creating pure, top quality and reusable raw materials.

By introducing the Circular Economy Package, politicians have at least made the first step towards meeting the demands of those around them. In May, the EU Commission then announced that it was planning to ban ten different kinds of single-use plastic products across the EU. This seemingly random choice of products include single-use cutlery, plastic straws, cotton buds and sticks for balloons. These are the products that tend to end up on our beaches and in our seas and producers will be called on to contribute towards the clean-up costs.

REMONDIS supports the efforts being made by the German government and the EU to reduce the volumes of plastic being used around the world but calls on them to step up their measures and do more than just these symbolic gestures.

1. Redefine the Ecodesign Directive
2. Increase investments in better sorting & recycling technology
and in research & development
3. Create an incentive system for industrial businesses

A comprehensive strategy to achieve more and better recycling must include moves to expand the structures that are already in place – including those far beyond the EU's borders. All countries need a well-functioning recycling infrastructure, in particular those in Asia, if the plastic pollution in our seas and oceans is to be reduced and they are to have a future-oriented circular economy. For humans, for the environment, for our seas, for our climate and, last but not least, for the economy itself.

Higher recycling rates, better sorting processes and a bigger market for recycled raw materials. These are the main aims of the EU's Circular Economy Package

Sustainability on the world stage

REMONDIS SARANSK'S EXEMPLARY WASTE COLLECTION CONCEPT A HUGE SUCCESS AT THIS YEAR'S WORLD CUP



A total of eleven Russian cities had spent many years preparing for one of the biggest events in 2018. Eight and a half million people travelled to Russia this summer to soak up the atmosphere of the World Cup. To be able to put on such an event, the country first had to set up a new infrastructure – one that also included the whole question of waste management. REMONDIS was also part of this four-week football bonanza with its comprehensive waste collection concept for the stadium and all other World Cup events in Saransk, including the fan parks.

"It was great to see the many thousands of international visitors using the different bins to separate their waste," commented Swetlana Bigesse, General Director of REMONDIS Russia. REMONDIS is the regional waste management operator responsible for all household waste in the Republic of Mordovia and was also appointed Saransk's exclusive partner for all waste management matters during the World Cup.

An additional 1,000 bins were set up across the city to cope with the increased volumes of waste during the event – including two fan parks and along the roads leading to the stadium. The goal was to make sure that the city remained clean throughout. According to Swetlana Bigesse, this goal was more than met. "The whole system worked perfectly. The thousands of football fans even separated their waste, making sure they threw their different types of waste into the right bins," she continued proudly. The company had also set up skips and waste compactors around the stadium to make the whole process easier and quicker for the company's staff.



Saransk leads the way in Russia when it comes to separating waste. 80% of the local inhabitants have access to an infrastructure enabling them to segregate their different waste streams. This figure lies at just eight percent in Moscow

A simple and effective system was used to collect and process the waste around the stadium making life as easy as possible for the fans



Segregating waste is not something that can be taken for granted in Russia as it is here in Germany. A mere eight percent of the people living in Moscow are actually given the opportunity to separate their recyclables and only six percent in St. Petersburg. Most Russians simply throw all their rubbish into one bin which then ends up untreated in landfill.

The situation is very different in Saransk, however, where 80% of the local inhabitants are currently able to separate their different waste streams. Which means it is ahead of all the other Russian cities. REMONDIS is certainly one of the reasons for this success. This German waste management firm has been working in Saransk since 2011 where it has succeeded in building up a modern, European system for collecting and recycling waste that also includes ensuring the different waste streams are separated before they are collected. Over the last seven years, the company has set up more than 5,000 bins around the city for the 330,000 local residents and regional companies. What's more, it has created a modern infrastructure with over 30 new refuse collection vehicles and a recyclables processing plant and started a major PR campaign to grow public awareness about the importance of recycling in other parts of the country as well. REMONDIS Saransk has now been named the official waste management operator for the region and has been awarded a contract to handle waste across the whole of the Republic of Mordovia, which comprises 22 different administrative districts in all. Over 6,000 bins and 30 new vehicles were brought in at the beginning of 2018 to expand the waste management system there, Swetlana Bigesse explained. Thanks to REMONDIS' work, 250 rural districts within these 22 administrative districts have become part of a modern waste management system for the first time ever this year.



An additional 1,000 bins were set up across the city during the World Cup

"People just smiled politely at us when we first mentioned that we wanted to introduce a separate waste collection system in Russia. Now, they are travelling from all over the country to see for themselves just what is possible," Swetlana Bigesse continued. The spotlight may no longer be on the country now that the World Cup is over but the conditions created for this event and the experience gathered over the four weeks will help to promote sustainability and environmental protection across the country.

"It was great to see the many thousands of international visitors using the different bins to separate their waste."

Swetlana Bigesse, General Director of REMONDIS Saransk

Since 2011, REMONDIS has set up more than 5,000 bins around the city for the 330,000 local residents and regional companies and created an infrastructure with over 30 new refuse collection trucks

 **5,000**
bins

330,000 
inhabitants

30 
refuse collection vehicles

Promoting young talent at the RETHMANN Group

665 NEW APPRENTICES AND 2,055 YOUNG PROFESSIONALS ARE PREPARING FOR THEIR FUTURE CAREER AT REMONDIS, RHENUS AND SARIA

Active and forward-looking personnel development programmes. These are becoming an essential tool as companies compete with each other to attract young talent to their business. The RETHMANN Group companies would appear to have got it right here with 665 young people joining the group this year – the highest intake of apprentices ever. 30 more apprentices than last year and so many people taking their first step towards their future career in one of the many interesting and future-oriented professions. Indeed, the variety of apprenticeship courses available at the RETHMANN Group is one of the reasons that sets it apart from the others.

Both the turnover and the employment figures of the recycling, logistics and bioindustry sectors underline just how important these industries are for our economy today: generating an annual turnover of around 76 billion euros, the recycling sector provides approximately 300,000 people in Germany alone with a secure job – and a job with great future prospects.

Being the largest of the three sister companies, REMONDIS offers a wide range of commercial, industrial and technical apprenticeship jobs covering over 30 different professions. 408 young people joined this global recycling, service and water company to start their apprenticeship on 01 August this year. All in all, the company is helping a total of 1,216 apprentices to train for their future career.

The company is also taking action to combat the impending skills shortage, as the need for skilled professionals, such as truck drivers, is growing all the time – despite the fact that this profession heads the list of the Top 3 apprenticeship

courses at REMONDIS (334 apprentices in all). It is working hard to find new people to take up an apprenticeship job in this profession by offering a variety of measures, such as special induction courses and targeted support to help them prepare for their exams. The apprenticeship course to become an industrial management assistant is in second place (183 apprentices) followed by those training to become an office management assistant (112 apprentices). It has become an annual tradition to invite a number of the new apprentices to REMONDIS' head office and 96 new apprentices starting at REMONDIS and SARIA travelled to Lünen on 01 August this year. Norbert Rethmann, honorary chairman of the supervisory board of the REMONDIS Group, underlined the importance of the work being carried out by the company to protect the environment. He also explained how the firm's focus on such future-oriented business fields has impacted positively on its overall development. Frank Dohmen, HR Manager at REMONDIS, and Ulrich Stallmann from the works council also congratulated their new colleagues on their start in this growing industry.

1,216


apprentices are currently learning a profession at REMONDIS



remondis-karriere.en





And the winner is ...!



REMONDIS ASSETS & SERVICES PRESENTED WITH THE "GREAT START! – GERMANY'S BEST APPRENTICESHIP BUSINESSES" CERTIFICATE

In June 2018, REMONDIS Assets & Services was presented with a silver medal in recognition of the quality of its apprenticeship courses – an honour it may now hold for twelve months. This award came from the German Great Place to Work Institute following a two-phase survey which involved the institute reviewing the company's culture and questioning its apprentices. The overall result took the findings of these two stages into account with both carrying equal weight.

This certificate will help set the company apart from its competitors as businesses battle to attract young talent to their firms – especially with the impending skills shortage. The company's own apprentices had a decisive role to play here as they were asked a series of questions about their job covering subjects such as credibility, respect, fairness, pride and team spirit. According to this survey, REMONDIS' apprentices in its A&S division particularly appreciate the expertise and support of their trainers, the great variety of tasks they can carry out at the company and the fair way the colleagues treat each other. "The feedback from our apprentices was really positive. 90% of them would recommend REMONDIS A&S as a place to do an apprenticeship," commented Kristina Rehahn, apprenticeship manager at A&S, who was clearly pleased with the results. The second part of the survey involved a so-called culture review. Those in positions of responsibility at the company presented some facts about the firm and its business operations as well as about its apprenticeship concept. This

information was then assessed by the institute. "We were actually presented with the gold medal for their culture review. We will be looking at our apprentices' assessments in detail and then using this information to further improve our apprenticeship concept," Kristina Rehahn continued.

High levels of transparency & credibility

A company's credibility increases considerably when potential candidates see employees being allowed to assess their own workplace. In addition, each certified company can present their business on greatplacetowork.de which helps to attract suitable applicants and has a positive impact on the whole recruitment process. Something that is especially important at REMONDIS as the wide range of professions and the many different fields of business pose a particular challenge for the HR officers responsible for recruitment.





Solid Waste Management – A book about our industry

NEW BOOK DESCRIBES THE DEVELOPMENT OF THE GERMAN WASTE MANAGEMENT SECTOR OVER THE LAST CENTURY



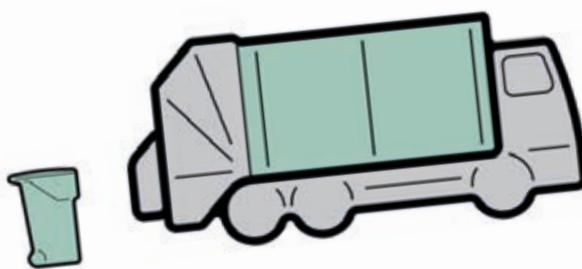
SASE has also published three books in German about urban environmental protection

The book looks back at the development of the German waste management sector over the last 100 years or so and takes a look ahead at the global challenges that will have to be faced in the future. This 200-page book has been published by SASE, an Iserlohn-based company whose primary objective is to share its knowledge with others.

Full of photos and images, the new book gives an interesting insight into how the industry has developed over the past decades. Subjects range from the first attempts to organise town cleaning operations all the way through to the country's ever more complex waste management and raw material activities. A close look is taken at the period after the German Waste Law was introduced in 1972, i.e. when national regulations were in place regulating the disposal of waste. A number of subjects have grown in importance since this law came into force such as waste avoidance, waste management in general, recycling and the circular economy.

The section covering today's waste management industry includes a number of practical examples to demonstrate what private sector companies, such as REMONDIS, have been focusing on in the 21st Century: namely to turn waste into a source of raw materials to help guarantee supplies, protect the environment and curb climate change. By the way, the foreword was written by Ludger Rethmann. It was his grandfather who laid the foundations for today's REMONDIS Group back in 1934.

SOLID WASTE MANAGEMENT



Waste Management in Germany - 100 Years of Experience
Global Challenges and Commitments for a Better World



Solid Waste Management (2018)

ISBN: 978-3-9813894-3-2

Preis: 19.95 euros + post & packaging

Available from: buch@sase-iserlohn.de

The money raised from the sale of the book will be used to help fund SASE's non-profit work in the area of environmental education

TSR launches its new website

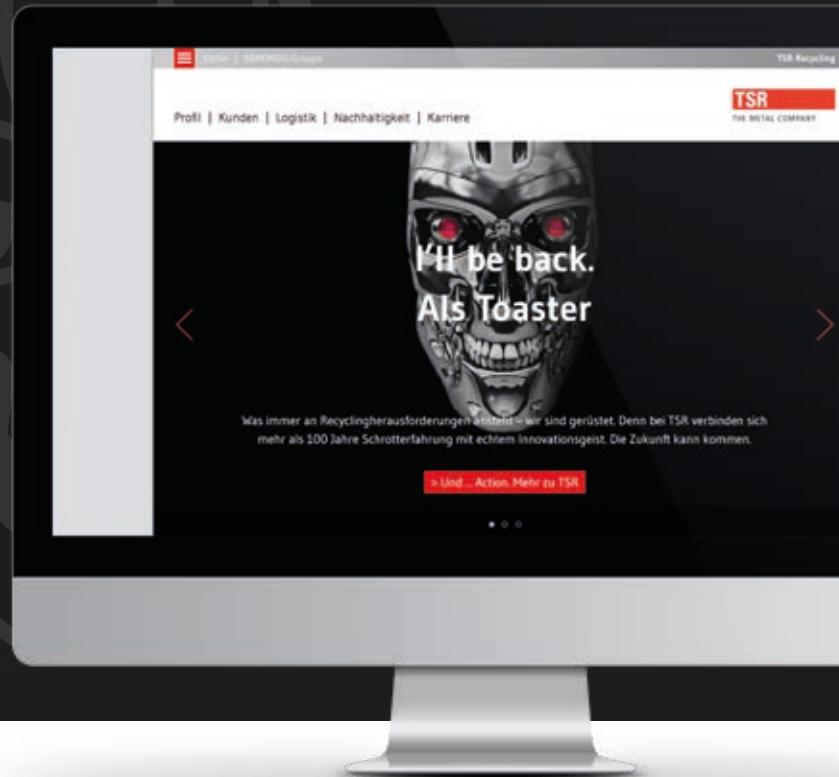
METAL RECYCLER IS READY FOR THE FUTURE

The company's modern and attractive new website, tsr.eu, has been online since May 2018. Thanks to this relaunch, the website now has a completely new design, clear structures and a fascinating image concept. Its responsive web design means it can be viewed on all types of electronic devices.

Based on the REMONDIS Group's corporate design rules, the fully owned subsidiary TSR now has a new website that not only presents its business in detail but also stands out thanks to its lean and user-friendly structure. "We felt it was really important to focus on our customers and their needs – which is why this is at the very core of our new website," explained Jenny Sbosny, who is in charge of PR and marketing at TSR.

Each individual group of customers has been given their own dedicated page within the website that provides a summary of the most important information relevant to their business. Thanks to this clear design, both existing and potential customers can click through TSR's extensive range of services and products to get to where they want to be in no time at all. What's more, the website covers nine other subjects. The objective of this relaunch was not only to be informative but also to attract attention and be entertaining as well: "The great variety of images and the deliberate choice of provocative titles help set us apart from our competitors," Jenny Sbosny continued.

Moving with the times:
REMONDIS' subsidiary TSR



"The great variety of images and the deliberate choice of provocative titles help set us apart from our competitors."

Jenny Sbosny, PR & Marketing at TSR

Plans are for additional microsites to be linked to the main website which will provide more details about the services offered to individual customer groups. By doing so, customers can learn more about the services and products targeted at their specific requirements.

**Take a look at TSR's new website
now: <http://www.tsr.eu>**



Apprentices' creativity helping to curb climate change

REMONDIS PRODUCTION'S TEAM NAMED BEST ENERGY SCOUT

The 'Energy Scouts' project is a joint initiative set up by the Dortmund Chamber of Commerce (IHK), EnergieAgentur.NRW and Effizienz-Agentur NRW that aims to make apprentices in their region more aware of the importance of energy and resource efficiency. Three REMONDIS apprentices decided to enter the competition, putting their heads together to come up with the "REMONDIS Smart Heater Efficiency" concept that involved them developing an energy-efficient central heating system for one of the office buildings on the Lippe Plant – a concept that has now won them first place.

The three award-winning 'Energy Scouts', Mark Feiler, Lea Sacharzek and Jean-Patrick Nolte, developed the project in collaboration with Kai-Erik Sattler and Lukas Matuschka (both responsible for energy management) and have become genuine efficiency heroes. Their new system of decentralised radiators, which are able to factor in door/window movement and outdoor temperatures, can reduce carbon emissions by more than 8,000 kilograms every year and cut energy consumption by 32,000 kilowatt hours. This means that the investment costs can be recovered within just two and a half years.

What's more, REMONDIS' Smart Heater Efficiency portal makes it possible for the room temperature to be automatically adjusted after office hours, at weekends as well as during the holiday period. While the project is still in the process of being implemented, the team's idea has already won them a prize. They beat their local competition (16 other competitors) from the districts of Dortmund, Hamm and Unna to take part in the national finals in Berlin at the end of June.

They took a look around and found the input they needed for their idea at one of the office buildings, where the rooms were being aired wrongly, the radiators

had old thermostats and were permanently turned on and the outside temperature played no role whatsoever. This was, therefore, also the place where they could save the highest amount of energy. "The high energy consumption levels, which lay at around 160,000 kilowatt hours a year, were crying out for a new and innovative control system," explained Mark Feiler, who is training to become an industrial management assistant at REMONDIS Production.

Before they began working on their concept, the apprentices first took part in a practical workshop organised by the Chamber of Commerce to teach them more about resource conservation and Germany's switch from fossil fuels to renewables. The workshop was divided up into three modules and enabled them to look into energy and energy efficiency in more detail as well as to enhance their project work and communication skills.

CO₂ emissions can be cut by **8,000kg** every year thanks to the REMONDIS Smart Heater Efficiency concept

Mark Feiler, Lea Sacharzek and Jean-Patrick Nolte (from left to right) won Gold for their Energy Scout project idea



To be an 'Energy Scout', the apprentices had to recognise where energy consumption could potentially be cut at their employer's, to document this and to take steps to bring this about

Festival waste – well sorted

REMONDIS' NORTH DIVISION LENDS A HAND AT THE KIEL WEEK SETTING UP ON-THE-GO RECYCLING BINS AND CARRYING OUT EDUCATIONAL WORK

Anyone looking for a reason to show just how important it is to protect our environment need look no further than our seas and oceans. The mass of plastic waste floating in the water is so large it can be seen from space. REMONDIS recently teamed up with the organisers of the Kiel Week, the world's largest sailing event, to support it in the area of waste management and recycling as well as to demonstrate how recycling can help curb climate change.

One of the unpleasant side-effects of this annual sailing event in Kiel are the large volumes of waste that are still being left behind by the visitors. The only way to limit this problem is to use a well thought-out waste storage and collection concept – like the one implemented by the regional head office of REMONDIS' North Division during this year's regatta in Kiel-Schilksee. As part of the sponsoring programme, the company set up a number of different on-the-go recycling points where the visitors could separate their waste. "As with all major events, there have to be enough bins spread around the area so that the visitors have somewhere to get rid of their rubbish," commented branch manager, Stephan Portwich. The next step is then to ensure that the different material streams are separated correctly which didn't always go quite to plan. Paper and packaging though, Stephan Portwich continued, were particularly well segregated in Kiel.

REMONDIS had also organised speed races in Schilksee to raise awareness of the importance of separating waste. Two teams pitted themselves against each other to see who



REMONDIS helped organise the Kiel Week to emphasise how recycling can help curb climate change

"As with all major events, there have to be enough bins spread around the area so that the visitors have somewhere to get rid of their rubbish."

Stephan Portwich, Manager of REMONDIS' branch in Melsdorf

could separate waste the fastest. "I think these races were really enlightening. Some of the people watching were surprised to learn they'd been throwing their waste into the wrong bin," one employee explained. This campaign should help waste collection in the future even if the people do not remember all the facts they learned. At the end of the day, humans alone can solve the problem of marine pollution. People need to be regularly reminded that they should use less plastic and segregate their waste properly so it becomes a normal part of their lives.



Compost – protecting water, storing water & naturally fertilising soils

PROTECTING GROUNDWATER AND SOIL DURING PERIODS OF DROUGHT

The amended 'DüMV' [Fertiliser Ordinance], which came into force in 2017, had a worthy goal. Its aim was to reduce the amount of nitrate in the groundwater. For many years now, the groundwater in some regions has been polluted with this harmful nitrogen compound which can be put down to the excessive use of animal-based fertiliser, primarily liquid manure. The problem: the legislator has not only regulated the use of liquid manure but put all organic fertilisers into one basket so to speak. This generalisation has led to compost users having to cope with a whole load of red tape. And all this even though natural compost not only protects the groundwater and improves the quality of the soil but also helps to store water in the ground. An important factor looking at the lack of rain we have had over the last few months.

People have been using compost to improve the quality of their soils for centuries. This natural product increases humus levels in the soil and, by doing so, helps prevent climate change. Compost conserves supplies of nutrients and promotes biodiversity. And it has another key property – something that is becoming increasingly important looking at this summer's drought. Compost can retain around five times its own weight in water which can then be passed on to the plants. The amount of water able to be stored by mineral fertiliser is much lower and liquid manure, of course, even lower still. What's more, natural compost does not contaminate the groundwater because

the nutrients are released slowly into the soil. Which is why it is all the more difficult to understand why the use of compost is effectively being questioned by law as a result of the ordinances drawn up by the individual German states regarding nitrogen levels in compost – something that really has more to do with liquid manure and mineral fertilisers. More and more environmentally aware farmers are fertilising their fields with natural compost to make the most of these advantages. In an interview with REMONDIS aktuell, Peter Zillikens, a farmer from Bornheim, explains why he prefers to use compost made from recycled organic waste.

Farmer Peter Zillikens uses RETERRA compost to fertilise his fields



REMONDIS aktuell: Mr Zillikens, the practice of using liquid manure as a fertiliser is being heavily criticised at the moment because of it contaminating the groundwater with nitrate. Why do you believe that using compost instead is a good way to improve soils and protect the groundwater?

Peter Zillikens: The actual fertiliser is bound to the solid matter in the compost. This means that it can't be washed out and is effectively released into the soil in portions. Besides this, the humus content has a positive impact on the soil.

REMONDIS aktuell: It's possible to see exactly which areas have been fertilised with compost over a long period and which haven't – especially in extreme weather conditions like the current heatwave. Is the fact that compost is able to retain water an argument for using it as a fertiliser?

Peter Zillikens: What's clear is that everything possible has to be done to counter such extreme weather conditions. Using organic compost as a fertiliser is certainly an important tool here.

REMONDIS aktuell: It's far more work for you to use compost than simply buying mineral fertiliser and quickly spreading it over your fields as and when it's needed. Why are you prepared to take on this extra work?

Peter Zillikens: There are three good reasons. Firstly, compost is good value for money. Secondly, it's not normally a problem to spread it on the fields as there are some highly efficient contractors happy to help out here and, thirdly, public opinion plays a very important role. Using natural compost rather than artificial fertiliser increases the value of our products in every possible way.

REMONDIS aktuell: The Fertiliser Ordinance primarily regulates compost according to its nitrogen and phosphorus content. Other components are far more important as far as fertilising soils are concerned, such as the humus, lime content, micronutrients and the improved soil biology. What factors are most important for you here?

Peter Zillikens: The main reason is that compost allows me to control the way vital nutrients are spread over my fields. At the same time, it feeds the creatures in the soil enabling them to reproduce – something that is also really important for improving soil quality. Soil tilth, i.e. the overall quality of the tilled soil, noticeably improves, not least because compost also has a positive impact on crumb structure. And it also minimises the risk of soil capping.



REMONDIS aktuell: What expectations do you have of your suppliers?

Peter Zillikens: Being a farmer, the quality of the product is really important as are punctual deliveries, of course.

REMONDIS aktuell: What expectations do you have regarding the quality of the compost?

Peter Zillikens: The compost must be of a good quality. What's more, it's really important that it doesn't contain any contaminants. It should have a uniform amount of dry content as the soil shouldn't become too dry after the compost has been spread to keep dust levels to a minimum.

REMONDIS aktuell: Mr Zillikens, many thanks for the interview.

The ability of compost / humus to retain water

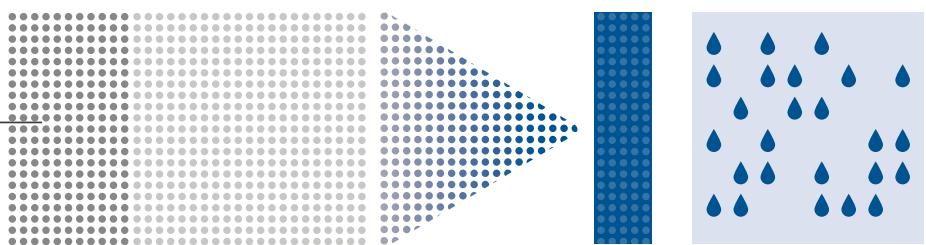
11.6 t/ha
organic substances

48 t/ha
compost

further decom-
position in the soil

6 t/ha
stable humus

30,000 l/ha
water



Source: VHE (soil association), vhe.de

Entering the Swedish market

GROWTH IN SCANDINAVIA HAND IN HAND WITH ADVANCED DIGITISATION



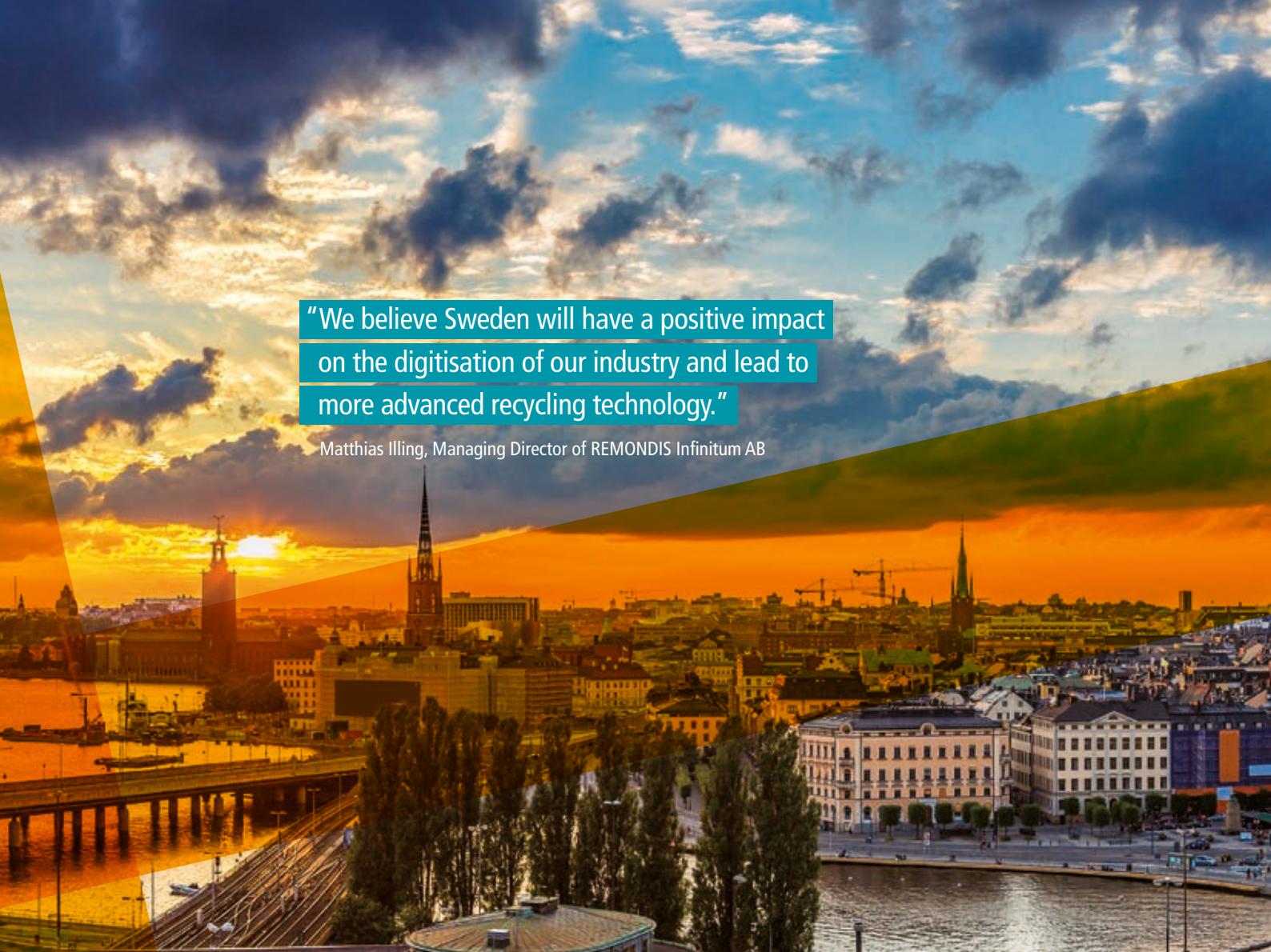
Learning from the best – that's something REMONDIS has no problem doing when it comes, for example, to digitisation and cutting-edge recycling technology. REMONDIS has had two particular goals in mind since taking over the Swedish company, Ad Infinitum: to establish services on the Swedish market that reflect the high German standards as well as to benefit from the Swedish recycling sector's long-standing expertise in the area of digitisation.

REMONDIS recently took over Ad Infinitum Recycling AB, a Swedish firm based in Boras (east of Gothenburg), with retroactive effect from 01 September 2017. Run under the new name REMONDIS Infinitum AB, the company offers its customers a full range of recycling services from its branches in Boras, Bandhagen and Jönköping. The customers and local residents will now be able to benefit from the German firm's comprehensive network and know-how. The goal here is to

offer more services, in particular to German companies operating in Sweden who are used to the high standards provided by REMONDIS on its home market. Having recently begun operating in Denmark, this acquisition of a Swedish company is a further important step for Germany's leading recycling business as it looks to grow its presence in Scandinavia.



The local residents and customers can now benefit from the German firm's comprehensive network and know-how



**"We believe Sweden will have a positive impact
on the digitisation of our industry and lead to
more advanced recycling technology."**

Matthias Illing, Managing Director of REMONDIS Infinitum AB

REMONDIS has also taken over the firm's 130 employees and around 70 commercial vehicles and will continue to deliver all the services previously offered by Ad Infinitum AB. These primarily focus on collecting and treating commercial and municipal waste. However, REMONDIS will also be working closely with local authorities, industrial and retail businesses as well as private households as it is also responsible for handling material collected via the Swedish take-back scheme for used sales packaging. Matthias Illing, managing director of REMONDIS Infinitum AB, believes it is important that the company continues to deliver top quality services.

"This acquisition is a great opportunity for us to work in this strong economy. The country has exactly the same attitude towards creating a sustainable recycling sector as we do. We won't need to convince people of the benefits of recycling which means we won't need to drop our standards," Matthias Illing continued.

On the contrary: digitisation is far more widespread in Sweden than it is in Germany – both across the country in general and in its waste management sector. One important advantage for REMONDIS in entering the Swedish market is, therefore, that it can continue to develop its business in this area to reflect Swedish standards. "We believe Sweden will have a positive impact on the digitisation of our industry and lead to more advanced recycling technology," he concluded.

Not a single monopoly in sight

THE STATUS REPORT ON THE CIRCULAR ECONOMY TAKES A LOOK AT THIS COMPLEX INDUSTRY –
AT THE SITUATION NOW AND IN THE FUTURE

The days when the waste management industry simply collected and transported waste are long gone. Today, everyone is focusing on ‘closing material cycles’ or ‘closing the loop’ i.e. recovering materials so they can be reused or sent for thermal treatment. The annual “Status Report on the German Circular Economy” (published as part of a study drawn up by the PROGNOS and INFA institutes on behalf of the nine largest private and public sector associations) takes a look at both the current and future performance and objectives of the industry. Prof. Martin Faulstich from the think tank, INZIN [Institute for the future of the industrial society], provided those doing the study with scientific support. The report reveals that the German waste management sector continues to enjoy steady growth and has a high quality recycling infrastructure in place. This is also illustrated by the fact that Germany leads the way when it comes to using recycled raw materials in production processes – although there is plenty of room for improvement here, too, as only 14% of all raw materials used by the manufacturing industry is supplied by the recycling sector.

Thanks to its wide range of products and services, the German sector is already in a position to help overcome the current and future challenges faced by society. Every year, around 400 million tonnes of residual materials are collected, sorted and recycled in Germany. The majority of this material is construction and demolition waste, followed by industrial, commercial and municipal waste. An extensive infrastructure is in place across the country to handle these volumes that includes 15,800 plants and facilities as well as 10,800 public and private sector companies.



Read more about the industry's activities on pages 10–11

REMONDIS appears here as just one of many market players and is nowhere near the biggest. As can be seen by the takeover of Tönsmeier, the fifth-largest recycling firm in Germany, by the Schwarz Group, Europe's biggest retail group. New on the market, Schwarz's subsidiary, GreenCycle, has an annual turnover of 96.7 billion euros (2017), thirteen

times that of REMONDIS, and employs 145,000 people. The group is, therefore, clearly looking to expand its recycling operations in the country and already has a workforce that comprises almost half of all the people working in the waste management industry. Pre Zero, the online platform for commercial customers that also belongs to the Schwarz Group, is helping to grow and add impetus to the market as well. This is further proof that there are no restrictions whatsoever to new companies entering the market and that there are certainly no monopolies around. Only the municipal and state-owned businesses have laid claim to around 50% of the overall market.

Bigger, better, broader

Together, the industry's operations generate an annual turnover of 76 billion euros and provide over 290,000 people with a secure job. REMONDIS and its subsidiaries make up



400m tonnes

of residual materials are collected, sorted and recycled in Germany every year



290,000

people have a secure job in the industry



76 billion

The industry generates a 76 billion euro turnover every year



almost 10% of the overall market with their annual turnover of 7.4 billion euros and approx. 33,000 employees. However, if its international turnover is taken out of the equation, then REMONDIS' market share lies at just 5.5%. The sector's extensive further training opportunities and wide-ranging fields of activities set it apart from similar industries elsewhere. There are two main reasons why the German recycling industry has a technological edge and such a strong position: firstly, the importance given to the whole subject of recycling by the German population and, secondly, the country's waste legislation, which is constantly setting new and more ambitious goals. The technological innovations that came out in Germany early on have played a decisive role – both in advancing plant technology and in growing exports: the volume of exports for waste technology alone lies at 4.3 billion euros. The most important markets here are the US, China and France.

Germany is among the global leaders for registered patents as well, namely in 4th place. Increased competition, however, is coming from China, the US and Japan who are learning from the German exports and using this knowledge to grow their own know-how. This trend is further confirmed by the number of Chinese investors who have bought shares in German companies over the last two years, for example in the Scholz Group (1.42 billion euro turnover), in EEW (541 million euro turnover) and in Alba (1.28 billion euro turnover).

Conserving resources – growing recycling – curbing climate change

The report also outlines three objectives: top of the list is conserving natural resources in order to protect the environment and prevent global warming. Looking at the way the global population is growing, action will have to be taken in this area. Experts estimate that there will be around 9.7 billion people living on our planet in 2050. And, logically, as the population and consumption increase, so too will the per capita consumption of resources: humans will need two planets to satisfy their demand for natural resources in 2030 or even three planets if everyone has the same living standards as we have in Germany today. Consequently, Earth Overshoot Day falls a little bit earlier every year. This year, it was on 01 August. Our attempts to create an environment worth living in are being thwarted by two factors: on the one hand, the so-called rebound effect cancels out any gains in efficiency we may achieve. On the other, the current raw material prices, which have been increasing since 2000, do not reflect the impending shortage of raw materials. There is no incentive to conserve our supplies of primary resources.

We have been living beyond our means since 01 August. Read more about Earth Overshoot Day on our 'news in brief' pages



The volume of exports for waste technology alone lies at 4.3 billion euros

A three-pronged recycling initiative

Both those who published the circular economy report and REMONDIS agree that simply conserving resources will not be enough. A genuine circular economy must be set up and a national raw materials strategy must be drawn up and implemented.

REMONDIS is calling
for a three-pronged
raw materials strategy

This automatically includes ensuring that more residual materials are recycled and that production processes are made more sustainable by increasing the use of recycled raw materials. Only if this happens and only if the relevant regulations are in place can the circular economy's third goal be achieved – i.e. to lower carbon emissions. The industry has already enjoyed a number of successes in this area by closing landfills and improving energy efficiency levels. Emissions of CO₂ equivalents fell by 67% between 1990 and 2015 – from 38 million tonnes to 12 million tonnes. And we should build on this success. By optimising the technology used by the sector and by further improving the way the industry is organised to create a genuine circular economy – as REMONDIS is already doing.

The future: "made in Germany"

Guests from the world of politics, business and science
discussed this subject in depth at the BDI's Raw Materials
Congress which was held in Berlin on 03 July 2018.

Those attending included BDI President Prof. Dieter Kempf, the Federal Minister for Economic Affairs and Energy Peter Altmaier and the executive chairman and founder of Ivanhoe Mines Ltd., Robert Friedland, as well as REMONDIS managing director, Herwart Wilms, and BDE President Peter Kurth. They looked at a number of issues in detail to highlight the main challenges that Germany will have to face regarding the future availability of raw materials.

Herwart Wilms and Peter Kurth took part in a panel discussion on the "Potential of the Circular Economy" where they stressed the economic importance of the industry – both from point of view of turnover and jobs. "The country already has good collection and recycling structures and yet we are rarely able to fully close material life cycles," Herwart Wilms explained. "We will only be able to fulfil our social tasks – climate change, the energy switch and raw material supplies – if more and better framework conditions are put in place to promote the circular economy," he added.

He also criticised the fact that the success of plastics recycling is too dependent on the price of crude oil and called on politicians to improve the framework conditions in this area. The objective here must be to grow the market for recycled plastics – either through voluntary measures, banning certain substances and processes, offering tax benefits or generating a minimum content.

The EU is listening

To tackle this challenge, the EU has drawn up a plastics strategy which is part of the European Circular Economy Package passed by the EU Parliament in April 2018. REMONDIS supports these plans but would prefer to see industries either voluntarily or being obliged to use recycled plastics in their production processes rather than the current symbolic activities, such as banning ten different types of plastic product. Despite the success in Germany, there is still a long way to go before a genuine circular economy is in place – and this will only be possible if everyone follows the same agenda.

REMONDIS is one of the fairest waste management firms

FOCUS-MONEY SELECTS THE FAIREST WASTE MANAGEMENT COMPANIES FOR THE VERY FIRST TIME

FOCUS-MONEY magazine recently joined forces with the consultancy firm, ServiceValue, to hold a major customer survey to rate the fairness of waste management companies for the very first time. They took a close look at 16 private sector and seven public sector firms. REMONDIS was among the highest-rated companies.

Fairness is something that is very much subjective. To be able to measure this, a number of attributes were drawn up to enable the companies' services to be rated which ServiceValue then integrated into a representative online study. In total, 1,615 customers were asked about 14 different aspects of the waste management services they had received. An evaluation of these so-called fairness attributes then enabled the subjective term, 'fairness', to be measured. Each person taking part in the study was allowed to rate up to two companies that they had worked with over the previous twelve months. A total of 1,791 customer assessments were evaluated. The experts had set out five fairness categories and divided up the 14 attributes among them. The companies that received above-average results were rated "good".

REMONDIS was awarded the "good" rating in four of the five categories. REMONDIS' joint venture in Frankfurt, FES, was also listed in the above-average groups for each individual category. The customers only had good things to say about both companies when they rated their services for collecting and processing recyclables and hazardous waste. According to the customers, both are also very good at providing

information about how to prevent waste. Those taking part also praised the services and infrastructure of the household recycling centres run by the companies. FES' customer service did especially well. The participants particularly appreciated the fact that the company responded so quickly to their emails.

Practically all of the waste management companies offer a mobile collection service for hazardous waste. REMONDIS received a great deal of praise in the special category, "Fairest hazardous waste collection service". Their mobile service collects a variety of waste products including old batteries, oil, bulbs and chemicals, and is very popular – especially among people who are themselves not so mobile.

4x

REMONDIS was awarded the "good" rating in four of the five categories



Recycled aggregate must be the preferred choice

A LACK OF LEGAL OBLIGATIONS IS HAMPERING THE USE OF RESOURCE-FRIENDLY AGGREGATE IN GERMANY

There are a whole number of good environmental and business reasons for using recycled aggregate – and not just when it comes to awarding building contracts. Which makes it all the more surprising that this useful secondary aggregate is too often sidelined in public tenders in Germany. What needs to be done to ensure this resource-efficient material gets the attention it deserves?



The branded products, remexit® and granova®, can be used in a variety of areas thanks to their strictly defined properties and stringent quality controls

The technical properties of quality-assured recycled and secondary aggregate are no different to those of naturally sourced aggregate. Which means this material can be used in construction projects instead of primary aggregate (such as gravel, sand or basalt) – helping to conserve our planet's natural resources. What's more, using recycled raw materials reduces land consumption. On the one hand, less countryside is destroyed as fewer primary raw materials need to be quarried and, on the other, less land is needed for landfill as this material is recycled and reused. Having been used in so many projects, recycled and secondary aggregate has more than proven its worth. Despite all these arguments in its favour, however, it is still being ignored far too often in public procurement processes.

Clear intentions but no effective implementation plans

There are two laws that govern the way the public sector awards contracts for construction projects in Germany: procurement law and waste law (part of environment law). Waste law is based heavily on the German Circular Economy Law [KrWG]. This, in turn, is supplemented with the waste laws of the individual German states. In principle, all these regulations aim to promote the resource-friendly use of recycled aggregate. The main reason why this material still tends not to be used, however, can be put down to the fact that the laws primarily contain voluntary options.



There is a lack of legal obligations giving priority to and making it mandatory for recycled aggregate to be part of the procurement process

The German states can make a difference

The German states can help change this situation so that we move away from the current voluntary options towards making it obligatory to use recycled aggregate. An amended version of the German Circular Economy Law came into force in 2012 (in response to a new EU Waste Directive) and each state has had to adapt their state waste laws to reflect these changes. Only 11 of the 16 German states have done this so far. The result is a somewhat vague collection of laws. Not only do they have different names, they also have different contents. And they regulate the use of recycled aggregate differently – with some states looking into this subject in detail and others less so.

Rhineland-Palatinate is leading the way

Rhineland-Palatinate's amended law is serving as a role model here as its state circular economy law stipulates that priority must be given to recycled aggregate in public procurement processes. It prescribes that local authorities must give preference to recycled products if they are suitable for the planned project and the costs are not unreasonable.

Thuringia passed its amendment and implementation law in November 2017 and is also heading in the right direction. It expressly points out that the public sector should act as a role model.



Local authorities in Thuringia are obliged by law to give preference to products that come from resource-friendly and low-waste production processes or from the recycling sector – which is true for recycled aggregate. Saxony is also looking to push forward the use of recycled products and is currently in the process of drawing up its new state circular economy law.

The German parliament must also step up to the mark

It can only be hoped that the states that have not yet amended their laws will do so quickly in order to actively encourage the use of sustainable and resource-friendly products in public construction projects. And that these remaining states make the most of this opportunity to make it obligatory for local authorities to choose recycled aggregate over other materials. Having said that, though, an even better solution would be if the German parliament were to introduce regulations that applied across the whole of the country instead of having these differing solutions in each individual state.

REMEX®

WORKING FOR THE FUTURE

REMEX leads the European market with its high quality recycled aggregate and quality-controlled secondary aggregate

TSR continues to grow in Benelux and the UK

SIX MORE BUSINESS LOCATIONS FOR TSR'S SUBSIDIARY, HKS, FOLLOWING THE TAKEOVER OF VAN DALEN

REMONDIS' subsidiary, TSR, has over 150 business locations focusing on the recycling of ferrous and non-ferrous scrap across Europe. HSK Metals, a fully owned subsidiary of TSR based in the Netherlands, expanded its network of six branches this spring when it acquired the Dutch firm, Van Dalen. Thanks to this takeover, HKS now has a further four business locations in the Netherlands and grown its operations in Belgium and the UK at the same time.



Rolf van Dalen (2nd from left), owner of Van Dalen, was appointed a member of HKS Scrap Metals' management team and will manage the company's activities in the Benelux countries and the UK together with Wout Kusters, CEO (4th from left), Ibrahim Bayram, CFO (far left) and Stefan van der Wekken, COO (3rd from left)

Van Dalen operates from four business locations in the Netherlands: in Moerdijk, Nijmegen (close to the Dutch-German border on the River Rhine/Waal), Middelburg (Zeeland Province) and Doetinchem. The company also has a branch in the Belgian town of Geel as well as in Dagenham, a city in the UK just east of London.

Officially known as Van Dalen Metals Recycling & Trading, the firm began collecting, processing, recycling and marketing ferrous and non-ferrous metals many years ago. Founded as a family-run business in 1947, it has steadily grown its network over the years, investing in shredders, shears and balers to enable it to recover and sort the different raw materials according to type. Thanks to this acquisition, the TSR network now has a further four shredders, four shears and a facility using sink float technology.

Rolf van Dalen – an expert in his field with over 30 years' experience of the metal trade – took over the company in 1982. He joined the HKS Metals management team following their acquisition of Van Dalen. The company believes that this union will create synergies that will not only benefit their customers and their partners but also improve their services. "Van Dalen's network of six business locations and recycling technology is a perfect addition to our European network," commented Bernd Fleschenberg, managing director of the TSR Group. "We will be able to work together to provide our clients with an even better portfolio of services as well as to expand our recycling activities and further strengthen our presence in the region," he concluded.

HKS and van Dalen are looking forward to expanding their operations in the Benelux countries and the UK together.

TSR
THE METAL COMPANY

HKS – a fully owned subsidiary of TSR – and Van Dalen are now working together on the scrap metal market

"Van Dalen's network of six business locations and recycling technology is a perfect addition to our European network."

Bernd Fleschenberg, Managing Director of TSR Recycling GmbH & Co. KG

Study: too few ELVs remain in Germany

TSR AND SCHOLZ SUGGEST A CENTRAL ORGANISATION COULD BE SET UP TO IMPROVE RECYCLING RATES

Every year, several million cars are taken off the roads in Germany because they have reached the end of their useful life. Just one in four of these vehicles, however, remain in the country so that they can be professionally recycled. This is just one of the conclusions reached by the Prognos Institute which recently carried out a study looking into the recycling of end of life vehicles (ELVs) on behalf of Scholz Recycling and TSR Recycling.

According to this study, only 1.1 million tonnes of the approx. 5.2 million tonnes of raw materials found in ELVs in Germany will be recovered in 2030. The German economy is losing out by around 2.4 billion euros every year as a result of the way scrap cars are currently being recycled. The reason is simple: the German economy is currently unable to access these valuable raw materials as they are not being recovered and have to buy new and more expensive materials from elsewhere.

"The figures published in this study are really alarming and make it very clear indeed just how badly Germany needs an ELV recycling solution that provides more guidance and control," explained Bernd Fleschenberg, managing director of TSR Recycling GmbH & Co. KG. "Which is why different groups – in particular, politicians and the automobile industry – need to help come up with a sustainable solution," he continued. The two companies, TSR and Scholz, have put forward their own proposal: to establish a central ELV recycling office. Its task would be to collect documents and proof from the industrial businesses to ensure scrap cars are being recycled correctly. This office could be financed via a levy charged for each new car sold in the future. Both recyclers could also well imagine there being a kind of deposit return system.

This study also highlights another problem. The combination and composition of the materials used to make cars will have changed significantly by 2030. While steel made up more than 70% of each car scrapped in 2000, this figure will have dropped to around just 55% by 2030. The share of the more than 50 different types of plastics and composite materials will have doubled from the current 15% to approx. 30%.

If a genuine circular economy is to be achieved, therefore, intensive discussions need to be held with the automobile industry. Effective recycling solutions can only be offered if the recycling firms know exactly how and what materials are used in the vehicles. "The goal must be to involve the recycling sector right from the start, i.e. in the actual development phase so that thought is put into how the individual raw materials can be recovered. This is the only way to create a truly sustainable circular economy," Bernd Fleschenberg concluded. What's more, this would not only reduce carbon emissions – as producing recycled materials consumes less energy than using primary raw materials – it would also reduce the industry's dependency on imports and help conserve our planet's natural resources.



Just 1 in 4 scrap cars are actually recycled in Germany – which means the German economy is losing out by more than 2.4 billion euros every year

A complete version of the study on ELV recycling can be found here



"The figures published in this study are really alarming and make it very clear indeed just how badly Germany needs an ELV recycling solution that provides more guidance and control."

Bernd Fleschenberg, Managing Director of TSR Recycling GmbH & Co. KG



AUSTRALIA The Red Continent is getting greener

A NEW ERA OF COMPOSTING BEGINS IN AUSTRALIA

The size of the country is most certainly one of the reasons why Australia did not need to focus so much on finding alternatives to landfilling in the past. Theoretically, the wide expanse of undeveloped land meant there was plenty of space available. Climate change, however, is also impacting on Australia forcing the country to look for more sustainable business practices.

This July, Lake Macquarie City Council and REMONDIS took a significant step towards creating a more environmentally friendly future for the region when they opened their state-of-the-art organics resource recovery facility in Lake Macquarie City, New South Wales. A total of 44,000 tonnes of organic waste – such as food waste and garden waste

– can now be processed into compost and soil amendment products every year. CEO Luke Agati believes the seven-figure sum has been well invested: "We are helping to promote Australia's strategy to recover valuable resources and see a great opportunity here to grow the company in the region."



The people living in Hunter are among the first to have access to such an innovative recycling service



"We want to make local inhabitants more aware of this subject and let them know about the advantages of composting food waste."

Luke Agati, CEO of REMONDIS Australia

This new facility has enabled REMONDIS to expand its previous operations in this region: the company has already composted more than 100,000 tonnes of garden waste since 2013, diverting this waste stream away from landfill and saving over 13 million dollars of landfill costs. Looking at sustainability, however, the most important fact here is that this cutting-edge facility not only prevents organic waste from being sent to landfill but is also able to make the very most of this material.

Greater environmental awareness for recovery and reuse

"REMONDIS applauds forward-thinking local government organisations such as Lake Macquarie City Council for their dedication to building the vital recycling infrastructure that will create job opportunities and strengthen the Australian economy," Luke Agati continued. The facility is a milestone in the efforts being made to reduce the region's environmental footprint and is one of the council's biggest projects. It is the centrepiece of the council's new 3-bin waste management system that stipulates that organic waste must be collected separately to significantly increase the volumes being recycled.

Australians are still relatively unaware of both the economic and environmental importance of conserving natural resources. To encourage more people to recycle their food and garden waste, the council has set up a convenient automatic, cashless weighbridge system that will give users access to the facility with the swipe of a card, enabling fast and accurate



Numerous guests were invited to celebrate the official opening of the organics resource recovery facility in Lake Macquarie



The new 3-bin system makes it obligatory for local residents to separate their organic waste from their other waste streams

transactions. "We want to make local inhabitants more aware of this subject and let them know about the advantages of composting food waste," Luke Agati concluded.

Environmental protection supported by New South Wales

The project also received a 1.4 million dollar grant from the EPA Waste Less Recycle More initiative, Australia's largest programme promoting recycling across the country. 135 guests attended the opening ceremony, including many prominent business people, the German and Australian Consuls General and two members of the Parliament of New South Wales.

[Click here to see a fast motion film of the facility being built in Lake Macquarie City:](#)



Gunther Neumann named "Young Business Executive of the Year 2018"

Gunter Neumann, manager of the Lake Macquarie branch and the new organics resource recovery facility, was recently presented with the Lake Macquarie Business Excellence Award in the category "Young Business Executive of the Year 2018" in recognition of his outstanding efforts to position Lake Macquarie as one of the country's leaders in environmental protection.



Norbert Rethmann, Honorary Chairman of the Supervisory Board of the RETHMANN Group, Heinrich Zölzer, a former member of the Supervisory Board of the RETHMANN Group, and Gunther Neumann, Manager of the Lake Macquarie Branch, welcomed in the new era of composting in Australia



Inspections from the air

RISING TO NEW HEIGHTS: USING A QUADCOPTER TO SEARCH FOR HEAT LOSS

XERVON has been using state-of-the-art heat imaging cameras to detect structural heat loss for many years now. It recently extended its range of energy efficiency and industrial insulation services by adding high-tech drones to its portfolio. And it is the company's customers who benefit as thermographic analyses carried out by drones are fast, inexpensive and effective.

XERVON®

WORKING FOR THE FUTURE

XERVON offers drone analyses both indoors and out – also for inspections that do not require thermal imaging

The scene: a large industrial premises with many different facilities connected to each other. A 40x40cm quadcopter can be seen hovering over the huge tanks. With great precision, the drone systematically flies back and forth taking in all sections of the tank roofs. Its state-of-the-art camera films each individual detail – producing digital and thermographic images. These are then transmitted to the ground station in real time where the technician from XERVON's insulation division checks them on the screen and controls the drone's flight path.

Using the thermal imaging drone is a genuine innovation. Tall plant parts are normally checked using a truck crane that lifts the operatives up to where they need to be. As their line of vision is always limited, the crane needs to be

moved again and again. Things are quite different when the quadcopter does the inspection work however. It can get to where it needs to be more quickly, can reach greater heights and is far more flexible. The area that a truck crane would need several hours to complete can be inspected in no time at all. What's more, it can be used to inspect parts that are normally very difficult to reach.

Once the flight is over, XERVON's insulation specialists analyse the images in detail. The advantages of a drone inspection are obvious here as well: as the operatives have access to digital and thermal images, it is possible to pinpoint exactly where the problems are. This further increases the quality of the inspection work and allows XERVON to draw up a highly effective insulation concept.



Thermographic analyses
carried out by drones
are fast, inexpensive
and effective

Clean up in Rheingau

BUCHEN UMWELTSERVICE DELIVERS OUTSTANDING SERVICES FOLLOWING A PLANT CLOSURE

Special services and safe solutions are needed when handling problematic materials – and not just when regular maintenance work is being carried out but also when industrial plants are due to be closed down. An example of this could be seen just recently when BUCHEN UmweltService was called in to help following the closure of a foam plant in the Rheingau region.

Koopp Schaum GmbH, a firm belonging to the international Vita Group, is a manufacturer of high quality foam material. The company primarily produced materials for the automobile, medical technology and packaging industries at its plant in Oestrich-Winkel. A number of strategic and business reasons had led to it deciding to shut down its factory this year and transfer its business operations to a different location owned by the Group.

Being an experienced industrial cleaning specialist, BUCHEN UmweltService was commissioned to carry out the work that had to be done after the plant had been closed down. Focus here was on emptying and cleaning the tanks used for storing the chemicals needed to manufacture the PU foam. This included 29 containers used for storing polyol, each with a capacity varying between 4 and 30 cubic metres. In addition, the operatives dealt with six tanks for storing isocyanate (ranging from 18 to 54 cubic metres in size). Their work also involved them cleaning the pipes connected to the tanks.

BUCHEN worked together with its sister company, REMONDIS Industrie Service, to ensure the residual materials and substances were sent for professional treatment. Which meant a further REMONDIS Group company was also able to bring their expertise to the table. One of the main reasons why BUCHEN was awarded the contract was the solution that it had come up with to deal with the mixture of water and isocyanate generated as a result of the cleaning process. Analyses of the liquids were performed throughout by Umwelt Control Labor so that in fact three REMONDIS Group businesses were involved in the project all in all.

BUCHEN®
WORKING FOR THE FUTURE

Being a leading industrial service provider, BUCHEN UmweltService serves its customers from its branches all over Europe



A series of safety awards

XERVON RECEIVES A FURTHER SAFETY AWARD IN RECOGNITION OF ITS EXEMPLARY STANDARDS

No matter how often a company may be praised or receives an award, it is always something very special. Every year, REMONDIS' industrial service providers, BUCHEN and XERVON, are presented with awards from their satisfied customers. These are primarily in recognition of their high safety standards. As was the case with BP's 'Believe in Zero' Award, an international safety prize that was presented to XERVON's scaffolding division.



An award in recognition of the company's exemplary safety measures: BP refinery manager, Dr Achim Schempp, presented XERVON managing director, Klaus Thiele, with its 'Believe in Zero' Award during a special ceremony

50,000 

BP analyses the services performed by around 50,000 employees and contractors before selecting the winners of its 'Believe in Zero' Award

"The whole subject of safety is at the very core of our business – in Gelsenkirchen and wherever else we may be working."

Klaus Thiele, Managing Director of XERVON GmbH

This newest award is the latest in a series of prizes won by these scaffolding specialists: in 2016, they received safety awards from LyondellBasell and Evonik. This was then followed in 2017 by the Safety Award from Bayer's subsidiary, Covestro. And now they have been given the 'Believe in Zero' Award – an annual prize which BP presents having carried out an analysis of the services performed by around 50,000 employees and contractors. Its focus for this award is on the ideas, measures and professional conduct that help to significantly increase safety at its plants. Their client was obviously impressed by the quality of the scaffolding services provided by XERVON at its refinery in the German city of Gelsenkirchen. The XERVON specialists work as a contractor there, carrying out a wide range of scaffolding tasks, for example during shutdowns.

Best practice means greater safety

XERVON and BUCHEN pay great attention to safety no matter which task they may be performing. Indeed, both companies consider their 'safety first' approach to be as if not more important than their business success. Klaus Thiele, managing director of XERVON GmbH and responsible for scaffolding across Germany, commented: "The whole subject of safety is at the very core of our business – in Gelsenkirchen and wherever else we may be working."

Zero errors – that is the goal. To ensure they reach it, BUCHEN and XERVON are continuously looking at ways to improve their safety measures. Risks to health and safety are systematically identified and protection measures drawn up and implemented. At the same time, the companies hold a wide range of seminars and training courses to make their employees more aware of potential risks and teach them how to deal with them. An extensive programme of safety tools has also been put together that is used by the staff in their day-to-day work, such as multi-language information sheets and safety cards for the checks that have to be carried out before they begin their tasks.

Preventing work becoming routine

One aspect of BUCHEN and XERVON's safety strategy is to ensure their employees are closely involved in all QHSE matters, i.e. topics covering quality, health, safety and the environment. The idea here is to strengthen their sense of responsibility as well as to hone their ability to spot risks. Special campaigns are also organised alongside the companies' standard activities to further highlight the whole subject of safety at work.

Just one example is the 'Safer together. You. Me. All of us' campaign, which was launched this April. One of the main reasons why BUCHEN and XERVON decided to start this comprehensive initiative was to prevent its employees becoming careless when performing routine jobs. A whole series of tools such as posters, flyers and videos are being used here to highlight a different safety issue every month. Yet another way, therefore, to ensure QHSE matters remain deeply embedded in the companies' everyday business. Something that is essential as far as BUCHEN and XERVON are concerned, as it is only possible to uphold their excellent safety standards if each and every employee carries out their work as they should – reliably, responsibly and competently.

XERVON®
WORKING FOR THE FUTURE

BUCHEN®
WORKING FOR THE FUTURE

Top priority is given to safety during all phases of a project – including, of course, the planning stage



Expertise as a service:
providing expert QHSE advice is part of both
BUCHEN and XERVON's portfolio

ACCREDITATION IN LINE WITH INTERNATIONAL STANDARDS

The extensive range of accreditations issued to both BUCHEN and XERVON underline the stringent quality and safety standards followed by both companies in their daily business. Both industrial service providers have an integrated management system in line with DIN EN ISO 9001 and 14001. In addition, the companies have accreditation in accordance with the international occupational health and safety management system, SCCP, as well as the occupational health and safety guidelines, OHSAS 18001. Their QHSE organisation comprises around 60 safety specialists and over 200 safety officers.

Modern energy with ENERVIE

RÖNKHAUSEN PUMPED STORAGE POWER PLANT TO BE MADE READY FOR THE FUTURE

The fluctuations in the amount of energy produced by wind and solar power are getting steadily bigger. One way to even out this rise and fall is to use pumped storage power plants, which are becoming more and more important precisely for this reason. Which is also why ENERVIE's subsidiary, Mark-E, is currently working together with the Aachen utilities company, Stadtwerke Aachen, on securing the future of the pumped storage power plant in Finnentrop-Rönkhausen. By carrying out extensive redevelopment measures, the partners are looking to ensure that the pumped storage power plant will be able to continue to deliver clean energy whenever it is needed for the next 30 years or more.

Tucked away in the low mountain landscape of the Sauerland region, the Rönkhausen pumped storage power plant has been providing electricity whenever demand is especially high since 1969



Rönkhausen GmbH & Co. KG

The Rönkhausen pumped storage power plant is located in the Sauerland region and is one of just two pumped storage power plants in the German state of North Rhine-Westphalia. It was built between 1965 and 1968 and has been used commercially since 1969. The plant has an overall output of 140 megawatts (MW), divided up between two pump turbines, each with an output of 70 MW. The upper reservoir currently has a storage capacity of around 690 megawatt hours (MWh) and can be filled or emptied in just 5 hours.

Having been in operation for almost 50 years, a comprehensive package of measures is now needed to ensure it can continue to be run safely and cost effectively. These meas-

ures include replacing the sealing of the upper reservoir, i.e. completely removing the old seal and installing a new layer. At the same time, the storage capacity is to be increased by approx. 70,000m³ by building a protective wall (approx. 1.20 metres high) and raising the overflow edge of the lower reservoir. This will lead to an increase in output of 45 megawatt hours and a reduction in network charges. To enable both machines to be completely overhauled, the pump turbines and spherical valves have been fully dismantled and transported to a factory in the south of Germany. This work is due to have been completed by October 2018. The plant will then be put into operation again and undergo a number of tests.

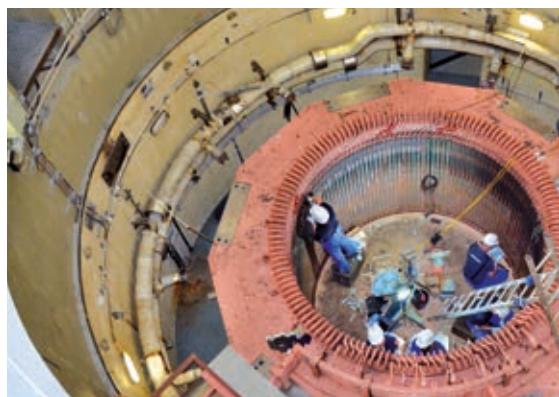
(from right to left) Together, Markus F. Schmidt, CRO Enervie AG, Erik Höhne, Board Spokesman of Enervie AG, Dr Christian Becker, Board Chairman of Stadtwerke Aachen AG (STAWAG), and Wilfried Ullrich, Commercial Board Member of Stadtwerke Aachen AG (STAWAG), decided the pumped storage power plant should continue operating over the long term





"This new investment model opens up long-term energy opportunities for both partners and secures jobs at Mark-E – both in the area of trade and operations."

Markus F. Schmidt, Chief Restructuring Officer at ENERVIE



The power plant is being given a new sealing layer and its storage capacity increased by 70,000m³ to prepare it for its future task of cancelling out fluctuations in power supplies

REMONDIS owns a 19.06% share in Energie. "This new investment model opens up long-term energy opportunities for both partners and secures jobs at Mark-E – both in the area of trade and operations," explained Markus F. Schmidt, ENERVIE, who led the negotiations for Mark-E.

This customised production of energy, therefore, is not only helping support the switch from fossil fuels to renewables, it is also a success story for the environment, economy and jobs in general.

The pumped storage power plant has an output of

 **140 MW**

LWG – 25 years of reliability and expertise

AROUND 100 GUESTS CELEBRATE WITH MANAGING DIRECTORS, REINHARD BEER AND MARTEN EGER

For 25 years now, REMONDIS Aqua's subsidiary Lausitzer Wasser GmbH & Co. KG (LWG) has been supplying high quality drinking water, treating the region's wastewater using reliable and environmentally sound processes and making the most of its water know-how to help out in other areas as well, such as redeveloping mining landscapes. 172 dedicated employees help deliver these specialist services – always to the satisfaction of their customers.

100 guests were invited to Cottbus-Sachsendorf waterworks on 22 June to help celebrate the company's 25th anniversary. The two managing directors, Reinhard Beer and Marten Eger, accepted their congratulations on behalf of all their staff. Rather than be given gifts, LWG collected donations

on behalf of a regional project that helps families from the Lausitz region with children suffering from a serious illness. Moreover, they also donated a generous sum of money to the Cottbus community foundation to support their efforts to build a water playground.



Lausitzer-Wasser.de



LWG'S MILESTONES

During the first few years, LWG succeeded in carrying out difficult restructuring work, ensuring LWG has developed into a reliable drinking water supplier.



Since 2006, the company has managed to keep drinking water prices at a stable level benefiting the local inhabitants

Its project to build a sewer pipe for wastewater and rainwater under the forecourt of the civic centre and the post office car park is also considered to be one of LWG's biggest successes to date.



LWG operates electric vehicles – helping to protect the environment in the region and underlining the company's belief in a circular economy. The biogas stored at its own plant provides the electricity needed to run the cars.

In 1995, LWG concluded the first water generation contract with the City of Cottbus and the 15th Cottbus primary school. Since then, the company has been producing teaching materials that explain how waterworks and sewage treatment plants work and how drinking water can be handled responsibly.

One of LWG's biggest projects to date was building a biogas plant at the Große Spreewehr sewage treatment plant, which is acting as a pilot project for the whole of the region.

LWG developed a method to sustainably improve the quality of the water in the mining lakes together with BRAIN Brandenburg Innovation GmbH, a fully owned LWG subsidiary.

340 young people have already completed an apprenticeship at LWG to become a plant mechanic since 1993. The modern training workshop in Cottbus, which also holds examinations on behalf of the Cottbus Chamber of Commerce, provides everything the apprentices need. This well-known training company has won a number of awards and also trains specialists for many of the neighbouring water associations, utility companies and local businesses.

CONGRATULATIONS

Holger Kelch,
Mayor of Cottbus

"Lausitz and LWG have been working together for 25 years and are now celebrating their silver anniversary. Over this period, LWG and its public and private sector shareholders have built up an extraordinarily good reputation – which can be put down to it being so reliable and innovative. This company is important for the region offering apprenticeships and jobs in and around Cottbus. LWG provides 172 people with a career and livelihood, it takes on its apprentices when they finish their course and our local residents appreciate the modern technology used by the firm and its stable prices. We can all count on LWG – in every sense of the word – and look forward the next 25 years and more. Many thanks to all those who have helped contribute towards this success."

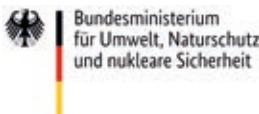
Dr Dietmar Woidke,
Minister President of the German State of Brandenburg

"Water is life – this is the motto of the photo contest launched by LWG Lausitzer Wasser GmbH & Co. KG to celebrate its anniversary. A motto that also sums up the philosophy of LWG, one of the largest and most respected water companies in Brandenburg. The City of Cottbus and 20 neighbouring districts benefit from the in-depth expertise of LWG's employees no matter whether it has to do with sustainable, high quality drinking water supply or environmentally friendly wastewater treatment. And this expertise is no accident: LWG has been one of the best training companies in Brandenburg for many years now – winning many awards and acting as a role model for others. So please accept my thanks here! The confidence that both the customers and the partners have in these water specialists is hugely important to be able to overcome the challenges that the water sector must face, such as climate change, environmental issues and demographic change. May I wish all those working at LWG every success in the future!"

(Source: Lausitzer Wasser Zeitung)

HAMBURG WASSER and REMONDIS found company to recover phosphorus

A ROLE MODEL FOR RESOURCE CONSERVATION AND ENVIRONMENTAL PROTECTION



The company, Hamburger Phosphorrecyclinggesellschaft mbh, was founded in March 2018 following a successful two-year pilot phase. Its job: to recover 7,000 tonnes of pure phosphoric acid from 20,000 tonnes of sewage sludge ash every year. The pilot business has already confirmed that this is both technically and economically practicable. The system being used in Hamburg to carry out this work is REMONDIS' TetraPhos® process and it is not only the only economically practicable system currently available on the market, it has also been presented with the GreenTec Award.



The successfully tested facility is on the grounds of Hamburg's sewage treatment plant

Further information about recovering phosphorus can be found here



The large-scale facility is due to be commissioned in 2020 and will be run as a public private partnership, with HAMBURG WASSER owning a 60% and REMONDIS a 40% share. "By recovering phosphorus, the company is actively helping to conserve natural resources and reduce the impact humans have on the environment – phosphorus is a vital raw material and supplies are becoming increasingly scarce," explained managing director, Roland Ruscheweyh.

Phosphate is an important ingredient in mineral fertiliser and the fact that it is becoming more and more difficult to mine is already having a negative effect on food production. And with the world's population continuing to grow, it may become increasingly difficult to supply everyone with the food they need. Recovering phosphorus has provided one solution to this problem – especially for agricultural businesses in Germany who have found themselves facing massive restrictions since the 'DüMV' [Fertiliser Ordinance] came into force in 2017. Almost 100% of all phosphate used in Germany has to be imported from abroad. This status quo, however, must have changed by 2029 at the latest: the German government has stipulated that large sewage treatment plants must recover the phosphorus from their sewage sludge or sewage sludge ash from this date onwards.

HAMBURG WASSER and REMONDIS are ahead of the others with their newly established phosphorus recovery business and are acting as a role model for many large German cities as far as carrying out research work in this area is concerned. Its research activities and innovative work are being supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) as well as by the BMU's Environmental Innovation Programme.



Turn to pages 20-21 to find out more about the Fertiliser Ordinance and the positive impact of compost

Hidden treasure

HOW REMONDIS AQUA IS MAKING THE MOST OF THE WOW! PROJECT TO PROMOTE THE RECOVERY OF RAW MATERIALS FROM WASTE WATER

Contrary to popular belief, waste water does in fact contain a whole host of valuable substances which are ideal for producing bio-based raw materials. REMONDIS Aqua not only uses this potential to recover phosphorus, gypsum and iron and aluminium salts but is also involved in developing new ways to recover fats, precious metals, bioplastics and silicon. The WOW! project (Wider business Opportunities for raw materials from Waste water) gives people from numerous European countries the opportunity to work together to promote the idea of waste water treatment facilities being a rich source of top quality resources.

North West Europe, in particular, has yet to recognise and make the most of the hidden treasure in their municipal and industrial waste water. A project launched this June aims to change this situation. It focuses on making all market players more aware of the value of waste water. The message is simple: they need to regard waste water as a valuable and energy-rich source of high quality raw materials to grow market opportunities, to preserve our planet's finite resources and to protect our environment. As soon as people have started thinking about the theory, the relevant technology can then be implemented to make it possible.

REMONDIS Aqua refers to this process as "Aquatic Mining" and has launched a number of pilot projects – initially to recover three further raw materials: cellulose, lipids and polyhydroxyalkanoates (water-insoluble fatty acids). "Waste water contains many valuable substances and yet so few of them are being used. Failing to do so, means valuable raw materials are being lost to us forever and unnecessary carbon emissions are being produced," explained Patrick Herr, WOW! project manager at REMONDIS.

By developing and optimising innovative recycling and up-cycling techniques, bio coal, bio oil and acetic acid can be made from recovered cellulose and bioplastics from recycled polyhydroxyalkanoate. "At the moment we are particularly involved in projects looking at biofuels. We're collaborating with the University of Luxembourg here to test a new system that can recover lipids from sewage sludge and process them into biofuel," Patrick Herr continued.

One of the long-term goals of the programme, which is being supported by Interreg North-West Europe, is to promote political discussion in Germany about the area of wastewater treatment as well as for the EU to develop a strategy plan on this subject.

Dr Martin Lebek, REMONDIS Aqua, gave an interview for the Global Water Intelligence magazine in which he talked in detail about using waste water as a resource. Read more here:



The WOW! project unites many different European countries enabling them to promote waste water as a source of top quality resources

400 children welcomed to Iserlohn on Children's Climate Day

At the beginning of July, the 'Klimaschutz durch Kreislaufwirtschaft e. V.' [Recycling to prevent climate change] association welcomed 19 classes of schoolchildren from a number of schools in Iserlohn to celebrate Children's Climate Day with them for the second year in a row. A full day of entertainment had been organised for all those taking part including shows, hands-on activities and outdoor games – all focusing on how to prevent climate change.



The RECYCLING PROFESSIONALS team also attended the event with their educational theatre show and their 'RECYCLING PROFESSIONALS on tour' programme enabling the children to experience environmental protection close up. Yvonne Busch, head of the 'Klimaschutz durch Kreislaufwirtschaft e.V.' office, was obviously pleased with how the day went: "We're really happy that we were able to once again pass on so much information about waste prevention and resource conservation to the 400 or so pupils."

Would you like to book the RECYCLING PROFESSIONALS' theatre show or some of their other activities for your school? wertstoffprofis.de

"We're really happy that we were able to once again pass on so much information about waste prevention and resource conservation to the 400 or so pupils."

Yvonne Busch, Head of the 'Klimaschutz durch Kreislaufwirtschaft e.V.' office

Earth Overshoot Day: humans once again living beyond their means

Global Footprint Network, an international non-profit organisation, has calculated that Earth Overshoot Day fell on 01 August this year. This is one day earlier than last year and means that humans are now once again using more natural resources than our planet can renew. This year's calculations show that humans currently need 1.7 planets to satisfy their annual consumption of raw materials. The USA is the no. 1 consumer of raw materials. If everyone lived as Americans currently do, then we would need five Earths to cover demand. Germans are high up the list as well: three planets

would be needed if the global population were to consume raw materials at the rate we do at the moment. In comparison, India is much further down the list needing just 0.7 Earths. If humans wish to continue to live in peace and enjoy similar living standards to those we have today, then they will have no other choice but to recover and recycle large volumes of – or preferably all – raw materials. This is the only way to ensure Germany does not lose its status as one of the leading industrial nations – and that Earth Overshoot Day finally falls on the day it should: on 31 December.

Application 4.0 – REMONDIS starts a new recruitment trend

REMONDIS' HR department set up its video application box for the very first time at this year's IFAT. Following the motto "Jetzt. Einfach. Persönlich." [Now. Simple. Personal], 70 potential employees made the most of this innovative recruitment tool to present themselves to the camera in their own authentic way. The box will be a fixed component of REMONDIS' applicant management system in the future. By doing so, the company would like to give applicants a future-oriented platform as they search for a new job.

The advantage? Applicants have the opportunity to present themselves as they really are – enabling them to give their CV genuine personality and save themselves the work of having to write a conventional cover letter. Not only the visitors to the IFAT thought this was a great way to get their message across. The HR department also believes this will make the recruitment process a lot simpler: "You get a much better feel for the applicant as you can see their facial expressions and their gestures," explained Anne-Mareike Henning, personnel officer at REMONDIS. The applications filmed during the exhibition ranged from internships to



managerial positions and covered a whole variety of fields and regions. It was hardly surprising, therefore, that 42 top candidates were identified within just three days. "We have received positive feedback from our different divisions. Some of the candidates have already been invited to attend an interview," Anne-Mareike Henning concluded.

remondis-karriere.de

Managing drinking water supplies in emergencies – politicians need to do their part

Extraordinary natural events, such as extreme drought or flooding, can have a massive impact on water infrastructure. In extreme cases, water supplies have to be restricted or even turned off completely. There are number of questions that need to be answered in this area – especially following the heatwave that we have experienced this summer.

And this subject was the focus of a recent conference held at Senftenberg Castle and attended by around 70 people from local authorities, water associations and water companies. They had been invited to the event by Wasserverband Lausitz Betriebsführungs GmbH (WAL-Betrieb), a REMONDIS Aqua subsidiary. Summing up, managing director Stefan Voß underlined the importance of the role of politicians here: "Politicians have yet to look at how drinking water supplies must be managed in the case of an emergency. We need a legal framework stipulating what needs to be done in such a situation and it must be clarified who has to bear the costs of putting in the measures to try and prevent such an emergency happening in the first place."



(from left to right) Stefan Voß, Managing Director of WAL-Betrieb, André Beck, Brandenburg Water Academy, Thomas Kölling, Head of Civil Protection and Disaster Assistance for the State of Saxony, Falk Schmal, Head of IT at Lausitzer Wasser GmbH & Co. KG, Susan Bandorski, Project Development at WAL-Betrieb, Thomas Leitert, Board Member of KomRe AG

Fleeing towards a safer future

SYRIAN REFUGEE BEGINS A NEW LIFE AT REMONDIS

Hussein Jaza was full of fear when he climbed into the nine-metre rubber dinghy that was to take him and 59 other refugees across the Mediterranean from Turkey to Greece. He was well aware that the two boats that had left the day before had not reached their destination.

Ever since he was a small child, Hussein has wanted to study Medicine. Which was why he moved from Syria to Iran to take his high school leaving exams. According to Iranian law, however, Syrians living in the country are not permitted to learn a medical profession. Hussein thought long and hard about applying for a visa to study abroad but was unable to fulfil all the conditions living in Iran. What's more, he was unable to return to Syria as his home had been destroyed. In the end, he felt he had no choice but to flee and take refuge in a country where he would be safe. On 09 December 2015, he left Iran and reached Germany just four days later.

Today, Hussein works at RE Textil Deutschland GmbH in Polch, a fully owned REMONDIS subsidiary. Every day, he handles at least four tonnes of discarded clothing. He packs the sorted clothes – no matter whether they be T-shirts, trousers or shirts – into large 25kg bags, sews them up and then loads them onto the trucks one by one. The high consumption rate in Germany produces large volumes of discarded clothing. Some of the bags from Polch make their way to second-hand shops. The majority of the clothes, however, are not suitable for the German market. These materials are sent to threshold and developing countries to provide them with affordable clothing. By doing this work, Hussein is also making an important contribution towards conserving our planet's natural resources and protecting the environment. On average, approx. 2,500 litres of water are needed to produce just one T-shirt. Looking at the number of T-shirts Hussein handles, he alone is saving 40 million litres of water a day.

Hussein Jaza

One case was all he had on him when he fled from Iran to Germany, via Turkey and Greece. Today, the 21-year-old handles at least 4 tonnes of clothes every day so that they can be worn by others elsewhere.



40m litres

of water would be needed to produce the clothes that Hussein handles every day

In addition, he is helping to reduce land consumption as less cotton is needed. Hussein's ecological footprint is pretty good when all these factors are taken into account. He grinned when he heard this, a little embarrassed. He hadn't realised the environmental benefits of the job when he began – his primary concern has been to earn money so he can finance his university studies. "That's fair enough but he has fitted into our team perfectly. He is so determined and focused and really well organised as well," said Manfred Frey, commercial manager at RE Textil Deutschland GmbH. Ideally, he would like to study in Hamburg or Heidelberg but he has got a while to go yet before he can do this. First of all, he needs to improve his German to pass the B2 level exams. Once he has done that, he can then apply to take part in a preparatory course at university, the next step towards studying Medicine. Hussein would like to stay in Germany and hopes eventually to be given a permanent residence permit. His command of the German language and his job at RE Textil give him hope for the future. The way he is promoting sustainability with his hard work at RE Textil is already unbeatable.

IMPRESSIONS

WIRTSCHAFTSMODEM

Federal Minister of the Environment Svenja Schulze (front row, right) made it very clear during her opening speech at the IFAT in Munich that she would like to see the recycling sector enjoying strong growth. During the exhibition, she visited REMONDIS' stand where she held discussions with (from left to right) Dr Johannes F. Kirchhoff, Managing Partner of the KIRCHHOFF Group, Thomas Conzendorf, REMONDIS Board Member, Herwart Wilms, REMONDIS Managing Director, Dr Helge Wendenburg, Federal Ministry for the Environment, Norbert Rethmann, Honorary Chairman of the Supervisory Board of the RETTMANN Group, and Egbert Tölle, REMONDIS Board Member



During the SPD Economic Forum, REMONDIS Managing Director Herwart Wilms (2nd left) discussed subjects such as product responsibility, product design and the recyclability of products with (from left to right) Prof. Helmut Maurer from the European Commission, Bremen Commissioner Ulrike Hiller, Dr Ines Zenke, Vice-President of the SPD Economic Forum, and Permanent Secretary Florian Pronold



REMONDIS Press Officer, Carina Hölscher, took a closer look at the company's day-to-day business: she spent a day with the team collecting paper and cardboard in the German town of Hamm and now knows just what challenges the drivers have to face when carrying out their work



Christoph Abt, Andreas Rak, REMONDIS Aqua, Katrin Brenner, REMONDIS Aqua, Ingrid Neger, Julia Philipp, Andreas Bankamp, REMONDIS Aqua, Karl-Heinz Florenz, Member of the European Parliament, and Christoph Florenz (from left to right) during their visit to the Lippe Plant

Taking a moment to catch up with one another at the BDI's Raw Materials Congress: (from left to right) Herwart Wilms, Managing Director of REMONDIS Assets & Services, Prof. Dieter Kempf, President of the BDI, Christian Monreal, Public Affairs REMONDIS, Hans-Joachim Welsch, Chairman of the BDI's Committee for Raw Material Policies



Year 3 pupils from Gottfriedschule in Lünen thought they were in a recycling wonderland when they visited the Lippe Plant



Technically speaking, there is only one growth industry. And it has been around for 3.9 billion years

Phosphorus plays a vital role when it comes to biological growth and energy metabolism. In fact, it is true to say: no phosphorus – no life. Which is why we have developed REMONDIS' patented TetraPhos® recycling process that enables phosphorus to be recovered from incinerated sewage sludge, a by-product of wastewater treatment. This not only sounds smart, it is smart – and was the reason why we were presented with the 2016 GreenTec Award in the 'Recycling & Resources' category. To find out more, go to > remondis-sustainability.com