

# Annual Report 2018

## The richness of e-waste

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# The richness of **e-waste**

Recupel is responsible for collecting and processing e-waste in Belgium. Although there might be a negative ring to ‘e-waste’, we consider it as our shared asset for the future. It should be absolutely clear by now that electrical and electronic goods cannot be allowed to end up in nature. At least we hope so.

But did you know how much more you contribute when you return your electrical and electronic goods to Recupel?

Valuable components are reused and put back into the economy. The result? Less mining to extract raw materials from the earth. That is not just better for the planet, but for the economy as well: more recycling creates more jobs. It is also a positive step for the environment, because fewer harmful materials and substances end up in nature. And less CO<sub>2</sub> is released into the atmosphere.

So there is a great deal of potential in ‘e-waste’. Instead of using raw materials once, we need to be using the same raw materials again and again. Urban mining turns the city into a mine full of old electrical appliances that are lying around unused, despite the enormous wealth they contain. In Belgium, there are about 50 million of them. Although our collection results are among the best in the world, we want to do even more to tackle this mountain of e-waste.

That is why we are starting this annual overview with a wish, a dream, and a heartfelt appeal.

If every family hands in one extra appliance this year, we will be taking a big step forward. That would mean about 5 million appliances being given a second lease of life: the ones that still work will be sent to the second-hand sector, and the raw materials in the broken appliances will be transformed into new materials.

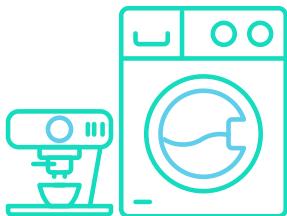
The figures below explain why every little bit helps if all of us make an extra effort. These figures encourage Recupel every single day to shift up a gear so that the circular economy can become a reality soon.

### Facts and figures about electrical and electronic waste:

# 50 mln

50 million tonnes of e-waste.

That is what we produce each year worldwide. It weighs as much as 4,500 Eiffel Towers!



# 20 %

Only 20% of the e-waste mountain is collected and recycled worldwide. Fortunately, that figure is a lot higher in Belgium.



# 77

A Belgian family has an average of 77 devices, 10 of which are no longer used.



# 40

Approximately 40 recyclable elements can be found in a mobile phone, including tin, copper, gold, silver and palladium.



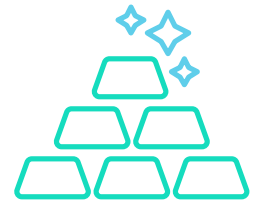
# 300 gr

We can extract 300 grams of gold from 1000 kilos of mobile phones to use in new devices.



# 50x

There are 50 times more valuable metals and minerals in e-waste than in ore from mines.



# 65 bln

The value of the metals in all the unused devices is estimated at 65 billion euros!



# 6 %

The circular economy can generate growth of 3% to 6% and thousands of jobs.



# Highlights of 2018



1. Where can all that electrical and electronic waste actually be found? BeWeee maps it out.

2. Recupel is a trendsetter: artificial intelligence for waste sorting

3. The very first International E-Waste Day

4. Grondstoffenjacht: learning through play

5. Investing in our employees of the future

6. Five stars for Recupel



**EFQM**  
Leading Excellence

7. Thank you to everyone in Belgium





HIGHLIGHTS OF 2018

# 1. Where can all that electrical and electronic waste actually be found? BeWeee maps it out.

65% of the appliances brought onto the Belgian market have to be collected. This is a clear, powerful and ambitious signal from the European Union. As the main player in Belgium, Recupel is responsible for 45%. However we have found that too many e-waste flows are currently still under the radar. Research by Deloitte has shown that 30% of the electrical and electronic goods brought onto the Belgian market are currently untraceable, which means that they may just end up in nature. That figure worries us, so we are only too eager to join the fray and get straight down to doing something about it.

## Mapping waste flows

To achieve that 65%, an important first step is to reliably map out all the waste flows in every phase. For this reason, Recupel committed to setting up the non-profit organisation BeWeee in 2018, along with other market

players. The BeWeee tool registers how much WEEE – waste electrical and electronic equipment – is collected, how much is processed and where. BeWeee conducts the initial analysis and sends the data on to the Flemish, Brussels and Walloon governments.

## We are stronger together

All the players in the waste processing chain are obliged to make reports in BeWeee and that is a good thing. The regional governments can identify and penalise players who do not play by the rules more quickly. It is only if market participants are committed to registering and processing e-waste properly that we can reach the European target.

## So what is Recupel's role?

Companies that have a contract with Recupel and report their volumes to Recupel are not concerned by the BeWeee reporting obligation. Recupel deals with the admin for them. If companies only partly report through Recupel, they need to report their balance each year using the BeWeee platform.

**Want to find out more about BeWeee? Read all about this reporting tool at [www.beweee.be](http://www.beweee.be)**



HIGHLIGHTS OF 2018

## 2. Recupel is a trendsetter: artificial intelligence for waste sorting

Artificial intelligence is our new showpiece. We have been working with IDLab, an imec research group at the University of Antwerp, to develop a self-learning software system that automatically recognises devices. The first phase focuses on waste from the residual category: mobile phones, small household appliances, radios, computers and DVD players.

### Why use AI for waste sorting?

At present, residual waste is analysed with the human eye. Employees of a waste processing company look to see which devices belong in which category. This is a time-consuming process, because it only affects about 3% of 40,000 tonnes of e-waste. How can this be made simpler without loss of quality? AI has the solution!



## How does AI work in waste sorting?

The camera immediately recognises a specific product. That is only possible if the software knows all possible products in this category. Over the last five years, we have been creating a database of more than a million (!) images of our devices and appliances. These were used to develop special image recognition software. But did the machine really recognise all these products, as highly diverse as they are? The results of the test were astonishing: 90% of products were allocated to the right category, such as IT equipment. This is a solid basis for refining the system and working to achieve a perfect score.

## What is the next step?

Once the system has been fully perfected, it will be possible to use AI to recognise every device without fail at the beginning of a processing operation. For example: what kind of device it is, what brand and what specific type made in that year. Why does that matter? Because it will enable producers to call up all devices of a given type and year for the specific recycling of materials and components, which means we can commit to the circular economy more efficiently.

The laboratory simulation has already started, and we expect that we will be able to introduce the new AI system across the board at the end of 2019. What is our dream for the future? We want to progress from automatic recognition to automatic sorting of devices. We are also negotiating with partners to make the AI system easy to use in other markets.

# International E-Waste Day

13<sup>th</sup> October 2018



HIGHLIGHTS OF 2018

## 3. The very first International E-Waste Day

Which of our ideas might work abroad as well, and vice versa? As a member of the WEEE forum (WEEE stands for Waste Electrical and Electronic Equipment) we work closely with 35 national WEEE organisations. The reason for this platform is simple: sharing is caring. Exchanging information and experiences makes all of us stronger.

The WEEE forum launched the first International E-Waste Day on 13 October 2018. On that day, we asked for greater attention to be paid to e-waste and called upon the population to hand in appliances they no longer use for reuse or recycling. Recupel launched its educational game Grondstoffenjacht in secondary schools during the first E-Waste Day. Curious? Read the next highlight!



HIGHLIGHTS OF 2018

## 4. Grondstoffenjacht: learning through play

We have developed a cool game for secondary schools: **Grondstoffenjacht!** This interactive game helps students understand the life cycle of electronic devices better. An employee of GoodPlanet – an organisation that specialises in environmental education – tells them where devices come from, what substances and raw materials they contain and what happens to them when they can no longer be used. What you learn young, you learn for life. Grondstoffenjacht met with great enthusiasm from both students and teachers. Their evaluations enabled us to make the finishing touches, and we will be organising a new round in secondary schools in 2019.



HIGHLIGHTS OF 2018

## 5. Investing in our employees of the future

It is fantastic to see how many valuable ideas there are around waste collection, reuse and recycling. That is why we are always looking for people and organisations to inspire us. And we inspire them too, of course. We strongly believe in the power of young people who can offer innovative and progressive solutions. Today's generation of students are our employees of the future.

So we work very closely with universities and schools. In 2018, two Idea & Innovation Management students at Erasmus University College Brussels did a six-week work placement at Recupel. "This was nothing like an 'ordinary' placement. For example, we organised an innovation audit, set up brainstorming sessions with management, and subsequently used that input to develop projects and ideas," an enthusiastic Gaétan explains.

Another example involves the creative minds at LUCA School of Arts. They helped come up with the brand-new design of our electric cars. But we didn't just get input: we shared our expertise with the students as well. More and more young people are exploring the theme of circular economy in their final projects. That is good news for us, and of course we are glad to contribute.



HIGHLIGHTS OF 2018

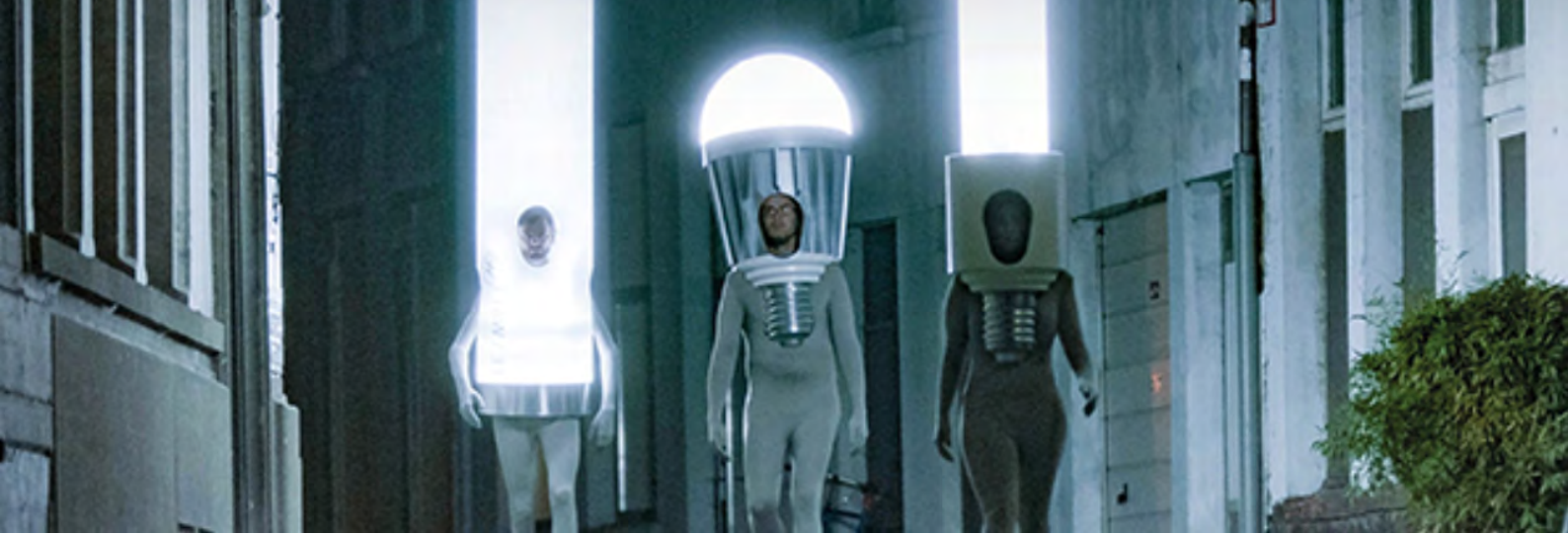
## 6. Five stars for Recupel

Quality that we can be proud of: that is what we are aiming for. We constantly measure our own achievements and launch programmes to take our operational excellence to a higher level.

We thoroughly audit our organisation every two years using the EFQM Excellence model. The EFQM model is an industry standard: more than 30,000 organisations use it to evaluate themselves.

The previous evaluation was in 2016. The EFQM Excellence model assessed Recupel in five areas: Leadership, Employees, Strategy, Partnership & Resources and Processes, Products & Services. Back then we achieved an outstanding score of 5 stars.

We had a new audit in 2018. EFQM evaluated how we had converted our points for improvement into concrete action points. We managed to keep our 5 stars, which means we have remained one of the best-organised companies in Belgium. A pat on the back for all our employees!



HIGHLIGHTS OF 2018

## 7. Thank you to everyone in Belgium

Nine out of ten Belgians dispose of their light bulbs the right way. And that is fantastic news, because we use 90% of the recyclable, finely ground glass of the best quality to make new bulbs.

The municipalities that were shining examples in 2018 – those that collected large quantities of light bulbs – were given a special lamp as a gift. In this way, we brought light to the darkest corners of Herentals, Etterbeek and Marche-en-Famenne.

# Recupel, built on **5 pillars**

Collecting electr(on)ic appliances and light bulbs is what we do. Establishing a circular mindset in our society is what we dream of. Here at Recupel we feel we must lead by example if we are to create that mindset.

## **We want to be the best operator**

The more efficient we are, the faster the circular economy will be a reality. That is why we are always on the lookout for new work processes so we can stay on top of our game.

## **We want to be an expert**

Our dream? Whenever someone goes in search of processing options for old e-appliances or light bulbs, Recupel must be the first source of information to come up.

## **We want to be a reliable partner**

What we do, we cannot do alone. We are constantly looking for partners to help us solve new problems and meet new needs.

## **We want to innovate**

The world keeps evolving and so do we. We want to keep learning, improving and challenging ourselves. That is the only way to make progress.

## **We want to be the best team**

Teamwork makes the dream work. No Recupel without its staff. Our colleagues are brimming with motivation and passion for a circular economy. It is their commitment that enables us to do what we do.

# Collection results

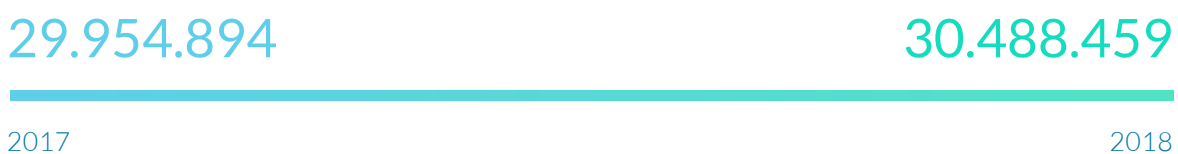
10.3 kilos per inhabitant: that is the amount of old electrical and electronic goods you collected in 2018. That means that more than 117,000 tonnes of electrical and electronic goods were processed properly and safely. If you consider that a family car weighs about one tonne, you will understand our pride in this fantastic result.

Did you know, by the way, that these figures put us among the best in the world when it comes to collecting and recycling e-waste?

## ▲ **Volume** of devices collected



## ▲ **Number** of appliances collected using Recupel's logistic network



## ▲ **Number** of small devices, electrical and electronic devices collected using Recupel's logistic network





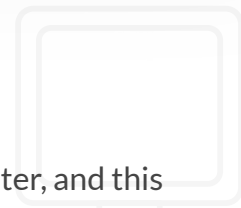
# What are the trends?

The collection of small electrical and electronic devices has increased by 3.5%



700,000 more small electrical and electronic items were collected in 2018. These include mobile phones, computers, hairdryers, coffee machines etc. Recupel is constantly investing in making it as easy as possible for consumers to hand in these small electrical and electronic devices. For example, there are Recycle Points in supermarkets, DIY stores etc. This increase shows that you are well aware of how to find the collection points

Devices are getting lighter and lighter



Electrical and electronic devices are getting ever smaller and lighter, and this is particularly the case for televisions and monitors. If we disregard televisions and monitors, we see a clear increase in the weight collected: about 1,500 tonnes. So we are doing even better – a lot better – than last year!

**So although we are on the right track there is still a long road ahead of us. But if we all contribute, we will reach our objective!**

# Collection network

## 564 Recycling parks

The recycling parks remain a strong channel for the collection of e-waste. Our network counts 564 Recycling parks across the country

## 24 Reuse Centres and Reuse Shops

Unwanted appliances that still work end up at a reuse centre. Recupel has a partnership with 24 reuse centers in Belgium. They make any necessary repairs and get your appliance ready for reuse. Then the appliance is sent to one of the many second-hand shops where it can start a second lease of life

## 7283 Collection points

You can hand in your old electrical appliance in a Recupel collection points. Our network counts 7283 collection points, mostly retail shops. For small electrical appliances, we offer a tailor-made solution: the Recycle Point. In 2018 we added no fewer than 222 new Recycle Points, with the result that our network has grown by 10%, or 2615 in total.

# Take on 2019

As you have seen from this annual report, 2018 was a successful year for Recupel. Our initiatives have created steadily increasing awareness of the importance of the circular economy. This has been converted into excellent collection figures: year after year, we succeed in processing more and more e-waste in an appropriate manner.

And we want to be able to say the same every year. That is why we are making this promise: day after day, our employees pour their passion and enthusiasm into making Belgium and the whole world a better place. But we can't do it on our own: we ask you and our partners to cherish the same ambition to prioritise recycling, reuse and the circular economy.

## 1. Extra service for companies in 2019

Companies have a lot of unused electrical and electronic goods stored in their cupboards. This is a job for a new digital platform for e-waste from businesses. Smartloop is a quick, simple and low-budget solution. The best thing of all is that the unused electrical and electronic goods end up in a recycling flow where they are processed appropriately.

## 2. Awareness

An extra service for companies does not mean we are forgetting consumers. We have got all kinds of smart campaigns ready and waiting to stimulate consumers to hand in their e-waste using Recupel.

## 3. Automation

We want to replace collection requests made by telephone and e-mail with automatic transport orders using a simple QR code scan or a unique code sent by text message. This is simpler for the person making the request and it will enable Recupel to make more thorough analyses of the data.