



I amsterdam.

CIRCULAR IS GOING GLOBAL

JOIN AMSTERDAM'S FLOW

Discover how Amsterdam is creating a circular future





FOREWORD

by Jeanet van Antwerpen

CEO Schiphol Area Development Company and Amsterdam Airport Area

The transition to a circular economy is in full swing. In this new economic model, innovations are generated in quick succession. These include product, process and system innovations, across all fields. We seek to fulfil an active role in this transition, because we recognize the opportunities it offers. Opportunities as we move forward, to innovate and add value. We can realize this added value in different ways and on different scale levels, with respect to our business practices, the business environments we develop, and the shaping of our region specifically in the in the Amsterdam Metropolitan Area.

Experiencing the circular economy in Amsterdam

The linear economy - which is based on discarding all that has reached the end of its lifespan - is being replaced by a mentality of reusing products, recycling materials and rethinking manufacturing processes. And Amsterdam is en

route to transforming its lead in the field into a bona-fide export product, inspiring other cities around the world.

The term 'circular economy' encompasses a wide variety of industries, businesses, processes and projects. This diversity becomes apparent when one looks at even a small selection of circular economy initiatives in the Amsterdam Metropolitan Area when you flip through the pages of this magazine. Nowhere in the world is the transition from linear processes to circular ones being taken up as quickly and as widely as in the Amsterdam Area. Visiting some of the many circular hotspots in Amsterdam and beyond means experiencing what it's like to live and work in a city that's made up of a series of self-sustaining, renewing cycles.

The Netherlands is positioning itself as a pioneer in the field. The country, and the Amsterdam Metropolitan Area in particular, has huge potential for developing, testing and scaling new business

models and production processes. The small size of the country makes it flexible; at the same time, population density is high and therefore a large amount of materials and products is in circulation. The logistics infrastructure is outstanding, and there is a high concentration of experts, researchers, institutes and innovative businesses. There is a thriving startup ecosystem, so startups receive a lot of support, enabling new models and products. Public support for innovative circular approaches is high. Lastly, the Dutch pride themselves on having an open-minded business mentality with much space for innovation and cooperation.

In this magazine we show you the circular frontrunners in the Amsterdam Metropolitan Area. We hope it will inspire you! As Amsterdam Airport Area, together with our partners of Amsterdam Trade & Innovate and amsterdam inbusiness we look forward to do some circular business with you!



INDEX

4 [CONNECTING THE GLOBAL CIRCULAR COMMUNITY](#)

5 [THE URGENT NEED FOR A CIRCULAR ECONOMY](#)

[CIRCULAR HOTSPOTS AMSTERDAM](#)

- 6 [Bundles](#)
- 8 [C-Bèta](#)
- 10 [CIRCO](#)
- 12 [Circular Face Scrub](#)
- 14 [Closing The Loop](#)
- 16 [De Gezonde Stad Zero Waste Lab](#)
- 18 [Fair Meter](#)
- 20 [Fairphone](#)
- 22 [Fashion For Good](#)
- 24 [Fibersort](#)
- 26 [Instock](#)
- 28 [Leapp](#)
- 30 [Madaster](#)
- 32 [Modulo Resource And Recovery Centres](#)
- 34 [Mud Jeans](#)
- 36 [Park 20|20](#)
- 38 [Pharmafilter](#)
- 40 [Plastic Whale](#)
- 42 [Reblend And Ahrend](#)
- 44 [Space&Matter](#)
- 46 [The Great Bubble Barrier](#)
- 48 [The Mobile Factory](#)
- 50 [The Waste Transformers](#)
- 52 [Van Werven Plastics Recycling](#)
- 54 [Vitens](#)
- 56 [Wasteboards](#)

- 58 [Colophon](#)



CONNECTING THE GLOBAL CIRCULAR COMMUNITY

by Freek van Eijk
CEO Holland Circular Hotspot

At Holland Circular Hotspot we believe that creating a circular economy calls for a profound transformation in the way we work and produce, and the way we design, teach, invest, and buy. That's why we strive to connect the global circular community, by inspiring cross-sectoral collaborations, stimulating the exchange of knowledge and innovations, and boosting circular entrepreneurship.

As a densely populated country situated in a vulnerable delta we had to collaborate since the Middle Ages to keep our feet dry and our space livable. Now, with the same mentality and in close collaboration between businesses, (local) government and knowledge institutes, we pioneer new circular solutions for global challenges. From an economic perspective it makes sense to keep resources as long possible and at the highest possible value in the loop. Circular economy helps us to reach the Climate Goals and Sustainable

Development Goals, not as a cost, but as a business model. It is also a source of new meaningful jobs. The Netherlands is now seen by many as a living lab for inventive, circular business models. But it makes no sense to create a circular island of the Netherlands if the rest of the world is not following a similar path.

To make the transition to a complete circular economy, cross-sectoral partnerships are inevitable. At Holland Circular Hotspot we stimulate international partnerships by connecting governments, knowledge institutions and businesses. We also serve as a portal for foreign companies with specific questions or requests. Thanks to our extensive network we can always create a match with the right experts.

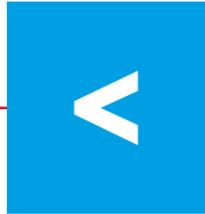
We share and present our innovations, knowledge and experiences and inspire international entrepreneurs and knowledge institutions with successful circular initiatives. At

the same time, we are eager to learn from the experiences of other circular experts around the world.

In this magazine a selection of interesting circular innovations and initiatives is shown from the Amsterdam region, a region that has been keen to be a circular frontrunner. We believe that many of these concepts have potential to scale in both developed and developing countries. The aim is not just to provide a catalogue of opportunities, but also to give insight in the diversity of circular solutions and support available in the Netherlands.

We hope you feel inspired to contact us and let us help you find your perfect circular partner. So, join the global circular community at Holland Circular Hotspot. We look forward to welcoming you at our website www.hollandcircularhotspot.nl or at one of our events.

Together, we can make our future circular!



THE URGENT NEED FOR A CIRCULAR ECONOMY

From linear to circular

For a long time, our economy has been 'linear'. This means that raw materials are extracted from the earth, used to make a product, and what remains after its use is thrown away (e.g. packaging).

To ensure that everyone has enough to eat and can buy the goods they need, like clothing and electrical devices, our economies need to become circular. In a circular economy there is no waste. That is because products are better designed and materials are reused as much as possible. If new raw materials are needed, they must be obtained sustainably, without placing an unacceptable burden on the environment and without exhausting natural resources. This challenge will require technological, social and system innovations.

National Circular Economy programme

To realise a circular economy in the Netherlands by 2050, the Dutch government has launched a government-wide programme in September 2016. It includes various measures to support the transition to a circular economy. For example, legislation and regulations are being changed and new, circular business models are being supported. International cooperation is stimulated as changes are needed in Europe and worldwide to create a circular economy in the Netherlands.

Focus on five sectors

The Dutch government has selected five economic sectors and value chains that will receive priority: biomass and food, plastics, manufacturing industry, construction sector and consumer goods. These five priorities are important to the Dutch economy and have a big impact on the environment. Much is already being done in these sectors to move towards a circular economy, both in the Netherlands and in Europe.

Various cities and regions in the Netherlands have also taken the initiative to close local and regional loops. They are developing policies, circular hubs and promote circular innovations, in close cooperation with frontrunner companies and knowledge institutes.

By using our raw materials efficiently, we will be able to continue to live, work and recreate in the future, both here and in other parts of the world, in a healthy and clean environment with a strong economy.

More information
www.government.nl/topics/circular-economy



Bundles customers save an average of 91 kWh of energy, more than 10 litres of detergent and 3000 litres of water per year

Bundles

Washing without waste

Dutch company Bundles introduced a pay-per-wash business model for washing machines. Households pay per laundry and receive tips and tools to lower their washing expenses and improve washing results - through a mobile app.

Sustainable machines

The start-up installs Miele washing machines at the customer's home. Miele currently manufactures sustainable washing machines and dryers. Together with the sustainable production, the company points out how easy it is to reuse the machines and the possibilities to recycle machine parts. Through its collaboration with Bundles, Miele is stimulated to design more circular (ungradable, disassembling, long lifespan, etc.), in order to reduce the costs of the wash-subscription. Bundles and Miele will ensure that the machines will get a new lease of life after their initial lifespan. However, Bundles does more than simply renting and servicing washing machines.

Product as a service

Pay-for-performance schemes stimulate the usage of raw materials and are for that reason a boost for the circular economy. Buying a product the traditional way disrupts the circular opportunities of a product. So you do not own a Bundle washing machine, but are part of a wider service: cleaning

your clothes in a cost effective and sustainable manner. To achieve this, Bundles has launched the Was-app (Wash app) which gives you tips on how to conserve energy, water and soap. Miele washing machines are connected to the internet and therefore are able to search for the most effective proportion between the washing load and amount of soap. Due to the long life of the machines Bundles uses, more than 2000 disposable machines were saved together with more than 1000 users. Bundles customers also save an average of 91 kWh of energy per year, more than 10 litres of detergent and more than 3000 litres of water through efficient equipment and advice. That is equivalent to 220 tons of CO2 or the amount of CO2 absorbed by more than 12,000 trees in a year.

Ambition

Optimising product use by connecting products to the web and apps is the future, according to Bundles. The software can also be linked to kitchen equipment, boilers and solar panels. In particular, products with high usage costs and high service expenses are suitable to the upgrade market. In the end, Bundles can relay its data back to the manufacturer, which can use it as a source to further develop their products.

www.bundles.nl/en



Old farmhouse transformed into inspiring showcase for events and workspaces in the circular economy

C-Bèta

A circular economy hotspot at Schiphol Trade Park

After its fantastic starring role as the physical home of the campaign 'The Netherlands as a circular hotspot' in 2016, the former Circular Expo underwent a massive circular renovation in 2018. The location has now been officially renamed C-Bèta and transformed into a space for events and workspaces as well as hosting an exhibition about the circular economy.

Inspirational C-Bèta

In many ways the circular economy is still being invented and just one of the places where this is happening is C-Bèta. The old farmhouse at Rijnlanderweg 916 in Hoofddorp is a top-class location within The Valley at Schiphol Trade Park. The farmhouse itself is an inspiring example of circular thinking.

The metamorphosis of farmhouse 'De Vogel'

In recent years the 'De Vogel' farmhouse has undergone a momentous transformation. From the outside it may look like

little has changed. But inside, the building has been rebuilt and refurbished with circular materials, infrared heating panels and circular furniture – all leased, because a circular economy is less about ownership and more about usage.

As part of the project, new meeting rooms and 24 desk spaces have been created, you can book the former stable for conferences and events, and there is also space for permanent and temporary exhibitions curated by circular companies. The outbuildings can be used by startups to scale-up their pilot projects as they look

to take their next steps into the market.

The most sustainable business park in Europe

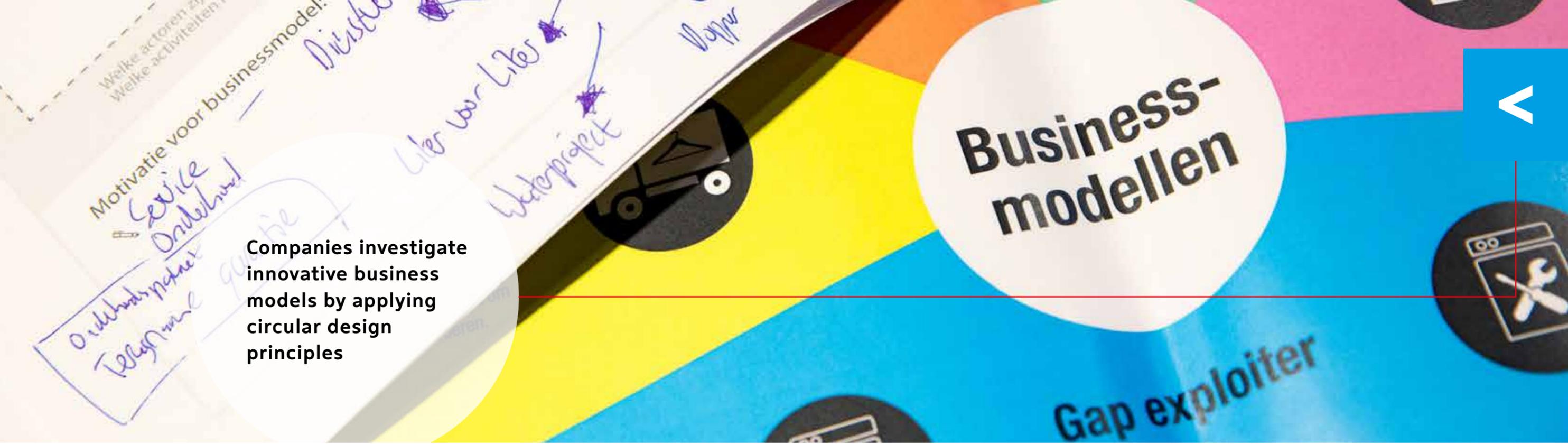
C-Bèta is situated at Schiphol Trade Park and is just one of the locations being developed by the Schiphol Area Development Company (SADC). Schiphol Trade Park is designed to be as sustainable as possible and aims to become the most sustainable business park in Europe.

C-Bèta brings parties together and shows what's possible
SADC cooperates with Guido

Braam, who is also one of the driving forces behind C-Bèta. The ambition is to develop C-Bèta into the meeting place for everyone who wants to contribute to shaping the circular economy. Braam is the founder of C-creators, an initiative by commercial and non-profit partners from the region. C-creators hopes to accelerate the circular economy by sharing knowledge, creating business cases and building a community. C-creators is currently busy with a construction programme to make 250,000 homes in the Amsterdam Metropolitan Area as circular as possible.

Guido Braam says: "The economy is changing. We simply cannot continue as we have been doing. If we want future generations to have the same opportunities we do, we must make the economy circular. Stop wasting raw materials and make things that are infinitely usable or renewable. We can only achieve this if all of us look for innovative and creative solutions. With the exhibitions at C-Bèta we can show what is actually possible. We are offering space for entrepreneurs to scale up their experiments and we'll also host events here."

www.c-beta.nl



Companies investigate innovative business models by applying circular design principles

CIRCO

Creating business through circular design

CIRCO facilitates companies to develop circular products, services and business models, by connecting them to circular design principles. The outcome is a win-win situation, with more value and more sustainability for the participating companies.

Circular Business Design Tracks
During three intensive one-day workshops, 10 companies discover new ways to employ circular methods in their business models. They investigate innovative business models and product design by applying circular design principles. Serious gaming is used to demonstrate the advantages of circular design and participants learn how to implement different circular strategies.

The CIRCO approach and tools are based upon the 'Products that Last' framework, developed by the Technical University Delft. The companies develop a concrete implementation plan for a circular product, service and/or business model. By the end of the CIRCO track, the companies will have

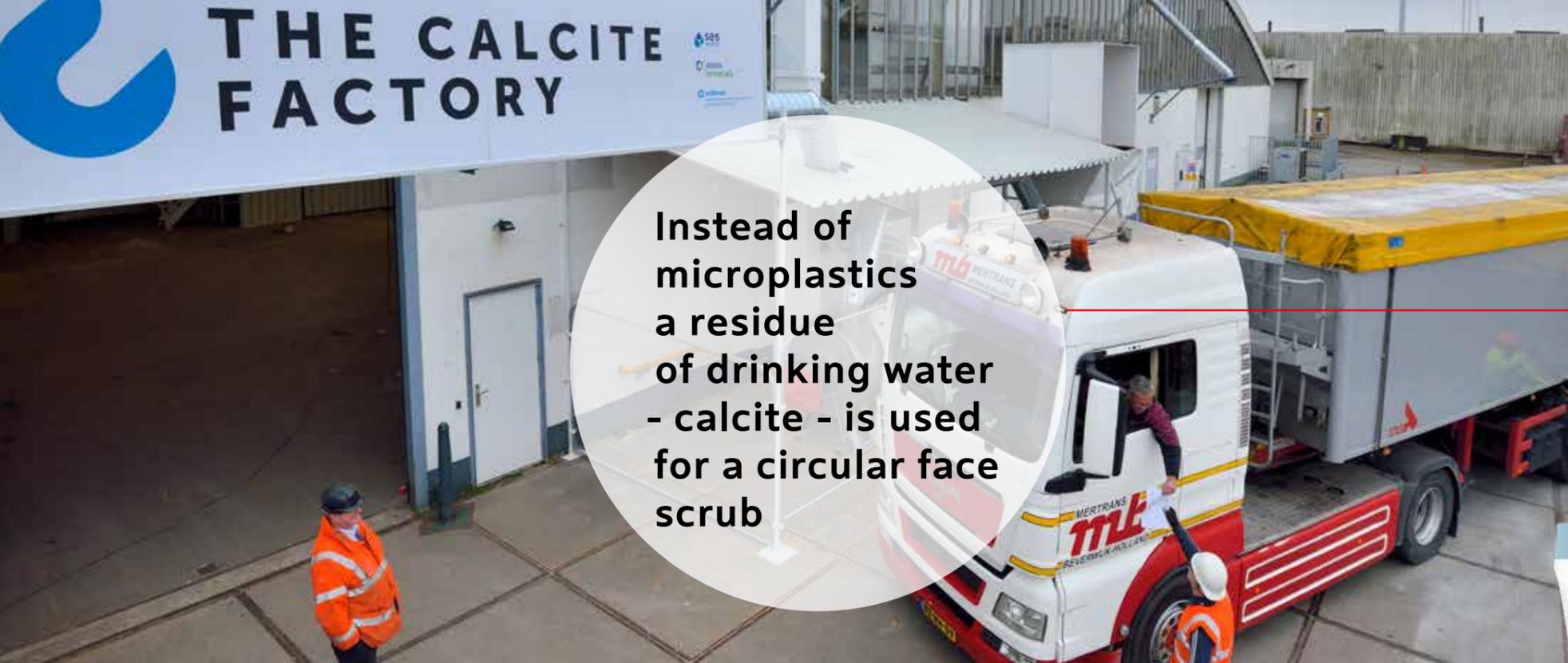
a clear idea of the technical and commercial feasibility of their project, the consequences for the company and the circular impact.

Circular Design Class
Creative professionals play a key role in initiating circular business. During this one-day Circular Design Class, 10 - 15 creative professionals learn the ins and outs of circular design through interactive work methods. Participants practice the application, and are inspired to act as circular change agents.

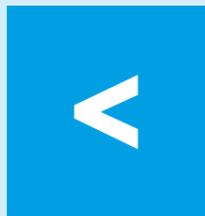
Community
In the last four years, CIRCO supported over 400 companies and 250 creative professionals in the Netherlands to create circular business by means of the circular design Track and Class. And the

coming years, CIRCO is aiming for greater international impact. As a start the methodology has been tested in various countries and proves to add value letting companies and designers engage with the circular economy. Next step for 2019 and beyond is to build structural partnerships in selected countries to empower local partners to activate companies and designers and use the methodology as driver in the circular transition. The CIRCO methodology is available and will be shared with these international partners on a non-commercial basis to be applied in their country in a train-the-trainer set-up. In addition to the Classes and Tracks, CIRCO acts as a platform for sharing circular design knowledge and experiences, debating challenges

and solutions and facilitating networking and collaboration within its community.
www.circonl.nl/english



Instead of microplastics a residue of drinking water - calcite - is used for a circular face scrub



Circular Face Scrub

The Calcite Factory

The Calcite Factory is an innovative facility where calcite -a byproduct of drinking water softening- is processed and made suitable for various product applications. This pilot plant was built in the port of Amsterdam. Waternet re-uses part of the processed calcite in the softening process. In the purification process, water is softened to prevent limescale forming on heating elements in home appliances. The rest of the processed calcite is used in products like the backing of carpet tiles or lime to produce glass. Naïf uses this calcite for a circular face scrub.

Naïf's mission is to make the best skincare products that are kind for every body and nature. Their product Circular Face Scrub contains calcite beads, a residue that remains during the process of purifying water. Every year between 4,7 and 12,7 million tons of plastics disappear in the sea. An important part of these plastics are microplastics or microbeads, small plastic beads that are used in many cosmetics. For example, one scrub can contain over more than 100.000 micro particles of plastic. By using the beads from the Calcite Factory, Naïf managed to develop world's first circular beauty product with calcite, which is not harmful to our environment. In this way the Dutch drinking water sector works towards the noble goals of a circular economy that leads to lower costs and the reuse of sustainable calcite.

Hard drinking water is a problem all over the world. Sales talks concerning the supply of seeding material are being conducted with drinking water companies from Denmark, Germany, Belgium and France.

www.waternet.nl





Around 4000 people were provided with extra income and over 50 tons of electronic waste were saved 'from the garbage dump'



Closing the Loop

For circular telecom

Closing the Loop (CTL) adds circularity to mobile phone usage. The company's services offset the impact of a phone's life cycle such as material usage and waste creation.

Offsetting the material-footprint of a device

A circular service that is gaining traction fast is CTL's 'material offsetting'. Similar to carbon offsetting, it allows for the offset of a footprint, but in this case, it's the material footprint.

Put simply: when a new phone is purchased, a broken phone gets collected and recycled, on a 'One for One' basis. As with CO2 offsetting, a fee is paid to fund the collection. The result: new phones become material neutral. CTL thus puts circularity into practice for its customers.

The service is being offered by international partners such as A.S. Watson and Renewd.

Waste-free reuse of phones

Reuse of mobile phones has grown rapidly in recent years. Most phones are shipped to emerging markets for their second life. As these markets lack proper recycling facilities, one could argue that reuse leads to more e-waste in developing regions. To tackle this issue, CTL adds a service to reuse. By taking out - and recycling - the same quantity of dead phones from Asia and Africa, as the number of devices being shipped

to these regions, CTL can make its customers' reuse policy waste-free. The service is being offered by international partners such as Sims Recycling Solutions and Infotheek.

Closing the Loop has provided around 4000 people in developing countries with extra income, and saved over 50 tons of electronic waste - some two million phones - 'from the garbage dump'. They have helped clients such as Fairphone, ING, KPMG, Schiphol and the municipality of Amsterdam to make their telecom policy more sustainable.

Big goals

CTL wants to make the telecom industry waste-free. It believes emerging markets offer the biggest chance of success and highest (social) return on investment, when it comes to circular business. That's why it invests in local collection and recycling in countries such as Ghana, which will also lead to more availability of urban mined materials. And as far as CTL is concerned, urban mining is the circular future.

www.closingtheloop.eu



The aim is to recycle 3x more waste in 2020



De Gezonde Stad Zero Waste Lab

Waste as a currency

The Zero Waste Lab by De Gezonde Stad is a local spot used to collect and upcycle waste. The community's rubbish is exchanged for a local currency which can be used to buy goods and services at local shops.

How?

The first Zero Waste Lab opened in Amsterdam in 2016. Local residents are supplied with a hopsack that they can use to collect a wide range of waste, including paper, plastic, textile, batteries, lamps, latex paint, vegetables and fruit and e-waste. After handing in the bag, the resident receives a coin which he or she can use to, for example, buy a cup of coffee, to get a discount on groceries, clothing or reading glasses. The waste will be reused or recycled. The lab itself serves as a place to inform the neighborhood about the benefits that recycling waste has for the environment, the city and the person. The second lab on the Waterlooplein was opened in 2017.

Why?

Just 27% of the waste in Amsterdam is separated, unlike the rest of the country where the figure is 51%. Amsterdam's goal is to separate 65% of its household waste by 2020.

The Zero Waste Lab scheme is meant to make it easier and more enjoyable for the community to separate their household waste. The organization is run by people who are distanced from the labour market. The organization trains them to be raw materials experts. The delivered waste will be upcycled and reused locally. The rest of the rubbish is collected by Zero Waste Lab's business partner AEB, and will be recycled.

Ambition

De Gezonde Stad's ambition is to contribute to a circular economy with the Zero Waste Lab scheme and create awareness about the value of waste. The organization's goal is to put a Zero Waste Lab in every neighborhood. The aim is to recycle 3x more waste in 2020 (compared to 2015).

Partners

The project is supported by Ymere, AEB, Gemeente Amsterdam, De Regenboog Groep, Milieuwerk and EY. De Gezonde Stad also collaborates with market vendors of the Dappermarkt and local business persons of the Dapperbuurt, the Dapperschool and the residents.

www.zerowastelab.amsterdam
www.degezondestad.org



“A smart energy meter made from responsibly sourced, reusable materials”



Fair Meter

Changing the world, one meter at a time

In 2013, the Dutch government and knowledge institutes and leading utilities companies Stedin and Alliander launched the Green Deal Fair Meter. The aim was to roll out smart meters to prepare households for a future-proof energy transition in a responsible way, with minimal ecological footprint and socially sound. The solution was Fair Meters.

Ecological footprint

A Fair Meter is a smart energy meter, made from responsibly sourced, reusable materials, using ecological and ethical manufacturing processes. The objective is to attain maximal transparency in the whole production process whilst reducing the ecological footprint. This meant rethinking everything from sourcing the raw materials, manufacture and logistics to installation and responsible waste treatment, and reuse of meters for a second life where-ever possible. The origin of all the materials in the production process are listed on a resources label, called Material Passport. This is an extensive overview, as a smart electricity meter consists of almost 250 different materials! The Fair Meter is not fully there yet; it is a step by step process to redesign the smart meters and create transparency per material, so we are “on our way”. Currently, we have been able to create a new meter designs

with our suppliers Floniskra and Landis+Gyr. This significantly reduces the weight per meter and even erases some materials totally from the design. Over the millions of meters in the contract, this means tons of materials saved.

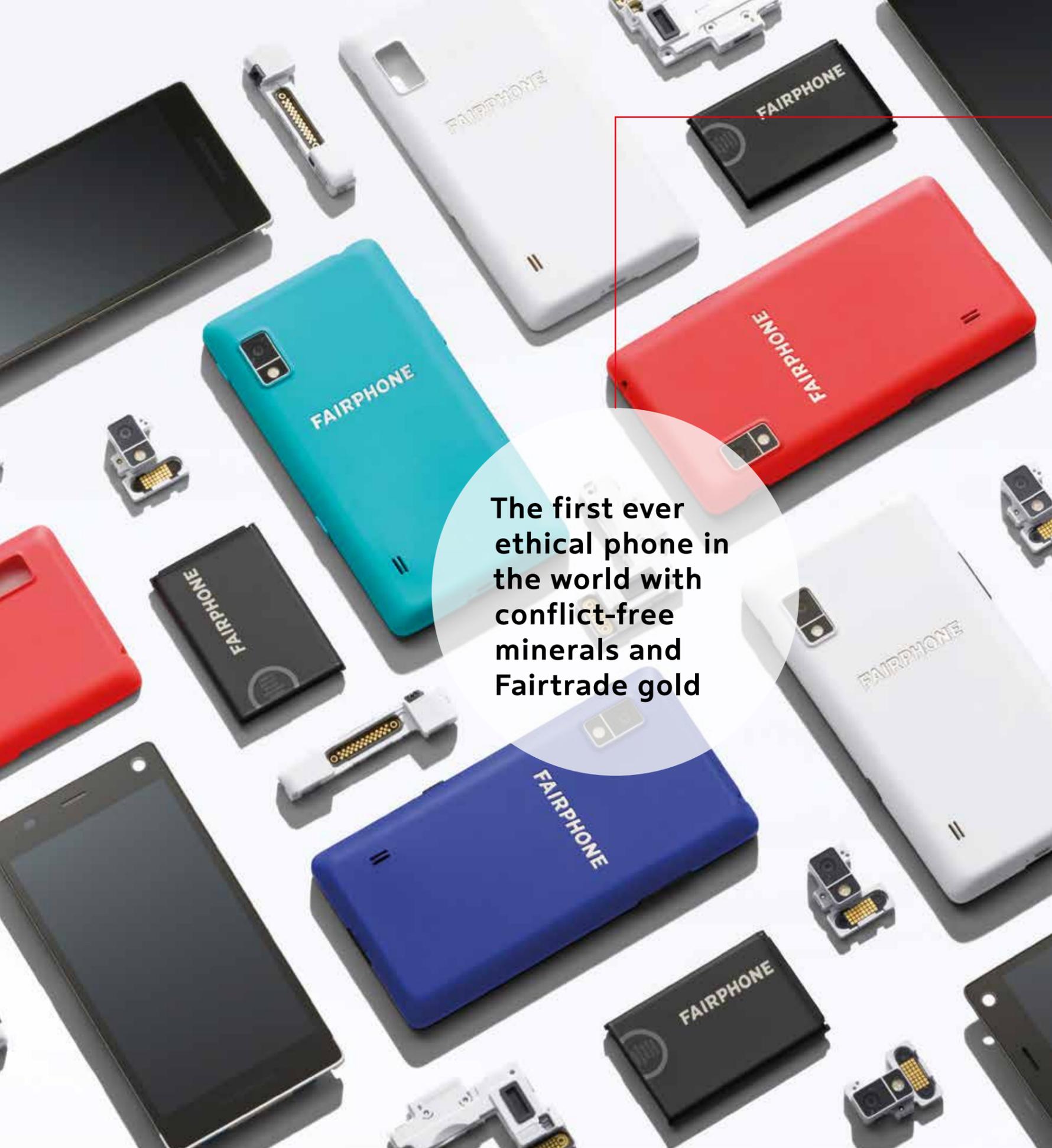
Performance ladder

To develop a fair smart meter for household energy consumption, Stedin, and Alliander, focus on address all major issues that the electronics industry is facing today – energy intensity, labour conditions, use of critical, conflict or toxic materials, material scarcity and e-waste This resulted in a Fair Meter performance ladder which can be adapted to any procurement process. Other grid operators and purchasers of electronic products can copy this way of working. Currently, other (companies in) countries are also interested, including Sweden, Germany and Belgium.

Sustainable energy system

Now these ecologically sound meters are being installed in homes up and down the country, in preparation of a sustainable energy system in the future. Soon some customers will produce their own energy for instance from solar panels supplying their excess back to the grid, while others will be able to reduce their bills because they have a better insight into their energy use. Fair Meter will help as an intrinsic sustainable product. Our mission is: Fair Meter, changing the world, one meter at a time.

www.fairsmartmeter.com



The first ever ethical phone in the world with conflict-free minerals and Fairtrade gold

Fairphone

A durable, ethical and smart mobile phone

For most people, buying a new phone every two years has become the rule rather than the exception. That has an enormous impact on both society and the environment, not least because a lot of the raw materials are mined in conflict zones.

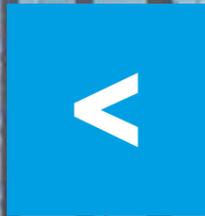
Growing in popularity

Fairphone developed the first ever ethical phone in the world with conflict-free minerals and Fairtrade gold in their supply chain. With the launch of Fairphone 2 in 2015, the company made a breakthrough in design and aims to break with the two-year cycle of the average smartphone and extend its lifespan. It has not always been easy to convince consumers to keep hold of a phone for that length of time. However, for this purpose, Fairphone is keeping repairs to the smartphone comparatively simple, making spare parts easy to get a hold of and software relatively future-proof. The company has already sold more than 150,000 devices altogether across Europe.

'Leading sustainable change'

Greenpeace recently published the Guide to Greener Electronics and put Fairphone at the top of the list leading on sustainable change in the industry.

www.fairphone.com



Fashion for Good's goal is to reimagine how fashion is designed, made, worn and reused



Fashion for Good

Fashion for Good is the global initiative that is here to make all fashion good. The Dutch organisation is an international platform for innovation and made possible through collaboration and community. Based in circular economy thinking, Fashion for Good is the hub, accelerator and collaboration platform for the entire fashion industry.

Fashion for Good is founded on the principle of collaboration and aims to create tools that are open-source, such as its Good Fashion Guide, which provides practical tips for brands wishing to embrace circular apparel principles. It operates from its first hub in Amsterdam, which also houses a Circular Apparel Community co-working space and a visitor-facing museum the Fashion for Good Experience.

Sustainable production methods

At the core of Fashion for Good is the Innovation Platform, which includes:

- Accelerator Programme: where they give promising start-up innovators the support, network, expertise and access to funding they need in order to grow.
- Scaling Programme: Fashion for Good supports innovations that have passed the proof-of-concept phase. A dedicated team helps them scale by offering bespoke support and access to expertise, customers and capital.
- Good Fashion Fund: This fund will catalyse access to finance where this is required to shift at scale to more sustainable production methods.

The consortium sparks and scales innovation by offering practical

action through support and funding. They also share best practice and lessons learned in open-source roadmaps and fosters sector-wide collaboration for the entire apparel industry to change. The organisation invites brands, producers, retailers, suppliers, non-profit organisations, innovators and funders to jointly transform the industry.

Partners

Fashion for Good was launched in 2017 with the C&A Foundation as a founding partner. Its programmes are supported by corporate partners adidas, BESTSELLER, C&A, Galeries Lafayette Group, Kering, Otto Group, PVH Corp., Stella McCartney, Target, Zalando, as well as organisations including the Cradle-to-Cradle Products Innovation Institute, the Ellen MacArthur Foundation,

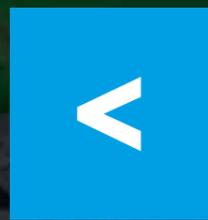
IDH - the Sustainable Trade Initiative, McDonough Innovation and the Sustainable Apparel Coalition.

The future

Fashion for Good's goal is to reimagine how fashion is designed, made, worn and reused. The firm wants to achieve this by harnessing the power of innovation, practical action and cross-sector collaboration. At the core of their mission is the exploration of new circular business models. In this way, the group will revolutionise the fashion industry so that people, companies and the planet can flourish together.

www.fashionforgood.com





Automatically sorting of mixed post-consumer textiles solves a major bottleneck in textile recycling

Fibersort

Processing textile fibres for reuse

Over 20 million tons of post-consumer textiles end up in landfill sites across Europe and North America every year, simply because these items have reached the end of their first-use phase. This excess provides an incredible opportunity to apply circular strategies to the textile industry to capture the inherent value of textiles, displace the use of virgin fibres upstream and eliminate textile waste downstream.

Textile-to-textile recycling
Fibersort is a technology that automatically sorts large volumes of mixed post-consumer textiles according to type of fibre. Once sorted, these materials become reliable, consistent input materials for high-value textile-to-textile recyclers.

“By automatically sorting finished textile products according to composition, Fibersort solves a key bottleneck in returning non-rewearable garments to the supply chain.”
Traci Kinden

Tipping point
High-value recycling technologies can transition low value waste into new high-value textiles, and they are a critical link in the circular supply chain. Therefore, Fibersort is a key technology that will enable textile resources to cycle repeatedly through the supply chain. Once commercialised, it will create a tipping point for a new, circular textile industry.

The Fibersort Project Partners and a broad range of industry stakeholders are working together to commercialise the equipment and publicly release information that will accelerate the transition to circularity. The Fibersort project is made possible through Interreg NWE funding, a programme that fosters transnational cooperation within Northwestern Europe.

Fibersort is actively seeking textile collectors and sorters, recycling technologies, brands and retailers, and other circular textile projects to join the team of collaborators.

www.circle-economy.com/textiles



Every week
Instock rescues
around 2,500 kilos
of food with their
three restaurants



Instock

Taking a Surprising Turn on Food Waste

Every year, one third of food production is wasted. That comes down to a worldwide wastage of 1.3 billion tonnes per year. Food waste occurs in the entire food chain. The average Dutch person, for example, throws away 41 kilos of food every year!

Value in neglected food surplus

Social enterprise Instock wants to reduce food waste. They take on this challenge by using products that would otherwise remain unsold. Think for example of a ripe mango or a broccoli with a beauty flaw. Every day their chefs prepare delicious meals from the food they rescue. Instock also hopes to contribute to raising awareness about food waste with their masterclasses, their cookbook, educational projects and circular products made out of food surplus. Not only does it help combat ingrained attitudes to food waste, but it also produces some exciting cuisine. After all, for both the chef and the consumer, what eventually lands up on the plate can be quite a surprise.

www.instock.nl



• **Buying a refurbished product is not just environmentally-friendly but also saves costs**

leapp



Leapp

ICT refurbishment

Every year, the Dutch throw out some 50 million tons of electronics, about 25KG per house-hold. When founder Rogier van Camp stood in line for the new iPad 2 in New York he realized that he did not need the latest model, instead he bought an iPad 1 from the guy he was standing next to in the line. When he came back to Holland he founded leapp and began selling refurbished Apple products.

Giving Apple products a second life

Refurbished is a fancy word for used products, except that in contrary to second hand products, refurbished leapp products come with a renewed warranty, a technical check on 50 parts and a fresh installation of the software. This way leapp gives a second life to tens of thousands of Apple products every year. Not only does it contribute to an environmentally friendly society, but it also saves a lot of money.

Help saving the planet

By refurbishing Apple products leapp decreases the environmental impact of electronics. The manufacturing process of new devices releases CO2 and creates hazardous waste. Mobile devices like the iPhone also contain rare minerals like cobalt, tin and gold. 40% of the

world's excavated cobalt is used in the manufacturing of rechargeable batteries in smartphones and laptops. Giving those products a second life has a huge impact on the need for rare minerals. Besides refurbishing Apple products leapp also uses specially designed transport boxes. Instead of having a box in a box, leapp uses a design that's made out of one piece of carton and doesn't use additional plastic.

Expansion

Leapp collaborates with the larger Dutch 'Apple Premium Resellers' where customers can trade in their old Apple products. Leapp will refurbish and resell those products. Whereas their competitors choose for a web shop only approach, leapp opts for a 'click & bricks' solution. This is an area Leapp differs from its competitors.

Consumer awareness

The Leapp online store is still the backbone of their operations. It focusses on the B2C-market as well as the B2B-market. Leapp is known for excelling in service and it has been rewarded with a customer satisfaction of 8.5 out of 10 on trustpilot.

www.leapp.nl

Using material passports, we can reuse building materials and eliminate waste



Madaster
Launch
Amsterdam
17-02-17

Madaster

Attaching circular value to building materials

Madaster's mission is to facilitate a circular economy where waste can be eliminated by providing materials with an identity. The Madaster Platform is designed as a public, online library of materials and products in the built environment. The platform facilitates registration, organisation, storage and exchange of data. Madaster carefully focuses on privacy, security and continuity.

Improved insight for better use of materials

Our planet is a closed system where all materials have value and should not be wasted. By giving materials an identity, they can be used in the economy. Through registration and documentation using material passports, we can reuse materials in a circular economy and eliminate waste. Thus retaining the composition, quality, reusability and construction throughout the lifetime of the object.

The Madaster Platform facilitates registration, documentation and valuation of materials used in the built environment to such extent that the material consumption of our economy can last for future generations through circularity. Building dossiers can be passed on to a building's new users. Madaster also facilitates data exchange to

producers and marketplaces to support refurbishment, reuse and monetisation of materials and products.

Integrated apps

Madaster makes information registered about materials and products available to individuals and organisations through a sustainable service that is compliant with data privacy and security requirements. Data uploaded to the platform is owned by the entity that owns the real estate object and is only shared at request of the owner. Usage is paid for via an annual subscription fee based on the metrics of the real estate registered.

The Madaster Platform supports automated processing of Building Information Models to simplify the registration of materials and products. The more details, the more the owner benefits through integrated apps and rapportage like the Madaster Circularity Indicator and the Financial Valuation reports on materials.

International developments

Currently Madaster is operational in the Dutch real estate market and Switzerland is being supported too. The platform is ready to expand to the infrastructure sector and together with local partners, Madaster explores opportunities in various other countries like Norway, Belgium, Germany, Taiwan and Australia.

www.madaster.com/en





The flexible construction method, enables environmental waste sites to be adapted, relocated and reused over time

Modulo Resource and Recovery Centres

Circular and modular environmental waste depots

Modulo Milieustraten develops and produces innovative, modular and circular environmental waste sites. Thanks to the flexible construction method, user-friendly sustainable environmental waste sites are built that can be adapted, relocated and reused over time. With maximum space utilisation under the platform and at minimal cost.

Innovative, modular, circular

Around every 10 years environmental waste sites have to adapt to new legislation and regulations, as well as environmental and demographic developments. Modulo's flexible design makes it possible to make adjustments to the modular waste site according to demands.

The innovative modular construction accommodates dual usage of the surface area through the hollow underside of the platform. The construction is used for the storage of waste and raw materials, sorting and processing of products and materials, repair of products, recycling activities, office and education space, start-ups and circular initiatives.

In addition to the circular flexible construction design, the construction itself is sustainable because the concrete elements are produced from secondary raw materials (eco granules) and are themselves 100% reusable.

Resource and recovery centres

Modulo has international ambitions in Europe and beyond to advise and supervise local partners and municipal and national governments on setting up Recycling, Upcycling, Resource and Recovery Centres. The concept is has a worldwide patent. First Modulo carries out a Country-City-Scan into the existing culture and situation on the ground, paying particular attention to informal and formal collection practices. It is key to involve all parties from start.

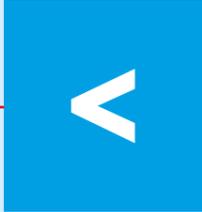
Then the right partners with the right experience and complementary knowhow are sought via a matchmaking process preferably in consultation with the municipality, the embassy or national governments. Experience proves that public-private-partnerships or public-private-mix work best when processes are well supervised and knowledge is shared.

Business scenarios

In the first year, the partners are taught trends and best practices on site and remotely. Potential business scenarios are looked out together and the local team is supervised until the first project is realised. This can take two to five years, depending on the municipal or national project integration.

Eventually responsibility is handed over to the local organisation. Modulo's waste collection solutions act as a circular beacon for the responsible collection of raw materials. The patent provides local governments and their partners protected status affording them the opportunity to develop integrated systems in their local setting.

www.modulo-milieustraten.nl



MUD Jeans

Giving jeans a third life

Dutch fashion entrepreneur Bert van Son decided to put a stop to the environmental impact of jeans manufacturing. To achieve this he introduced MUD Jeans: a sustainable way to produce jeans.

Environmental agencies have calculated that 8000 litres of water is required for the manufacture of one pair of jeans. In addition, the cotton industry which produces the denim for jeans is responsible for 16% of the world's pesticide use.

Lease scheme

These numbers shocked Van Son and he decided to take action by setting up the MUD Jeans production line. His brand uses fabrics that contain 40% recycled denim, a true innovation. However, the most innovative part is his lease scheme.

By leasing out its jeans, MUD Jeans keeps its product inside its manufacturing cycle. Every

returned pair of jeans is recycled into a new product and customer can decide to swap to a new pair.

Upcycled and recycled

When turned in, the old jeans are upcycled into 'vintage jeans'. After that product cycle, the jeans will be reused in the production of new jeans. MUD Jeans works with a factory in Valencia (Spain) which tears old jeans apart to make new yarn out of it. They can use up to 40% of recycled cotton to make new jeans, which is pretty innovative.

In 2016 MUD Jeans organised the Recycle Tour, travelling to Spain with 3000 returned MUD Jeans to show the world how denim was recycled. In 2018 they followed the recycled fabrics to their factory in Tunisia and back to the Netherlands to showcase how the jeans are made and to be fully transparent.

www.mudjeans.eu

Every returned pair of jeans is recycled into a new product



The focus on the well-being of people results in an inspiring, healthy and productive work environment



Park 20|20

World's first Cradle to Cradle inspired work environment

Park 20|20 in the Municipality of Haarlemmermeer, near Amsterdam, is the world's first fully operating Cradle to Cradle inspired working environment. It is presently under development by Delta Development Group, VolkerWessels and Reggeborgh Groep.

Park 20|20

Park 20|20 is a uniquely sustainable business park consisting of approximately 88,000 square metres of offices and 3500 square metres of facilities. In its development, one of the most important aspects focuses on the well-being of people resulting in an inspiring, healthy and productive work environment. The park runs entirely on renewable energy and other sustainable assets include heat and cold storage, photovoltaic cells, together with a water purification system via helophyte filters.

Cradle to Cradle

Cradle to Cradle recognises that nature follows an ingenious cycle in which waste does not exist. By taking into account how a building could be disassembled (circular

design) during the design phase, a circular approach can be applied to the work environment. This is what is happening at Park 20|20, where the materials used are biodegradable or can be reused for different products with another life.

Through the Park 20|20 materials innovation programme, the development team has been better able to identify and target manufacturers and distributors of Cradle to Cradle Certified™ materials early in the design and concept phases. This improves collaboration and the innovative application of their products to meet project needs.

Additionally, the programme engages companies with substantial circular potential to

introduce the Cradle to Cradle Certification standard as a viable option, further improving their health and circularity. This enhances access to healthy, circular products for the greater European and global construction industry. Via this programme the Park 20|20 team has assembled the world's largest collection of Cradle to Cradle Certified™ materials and enabled many products to achieve Cradle to Cradle Certification.

Focus points

For Park 20|20 the focus lies on the following aspects:

1 Design for disassembly - It is important that buildings are made of reusable materials. For example, buildings are not worthless after their life cycle, but rather a valuable asset.

- 2** Productivity and health - Research shows that buildings at Park 20|20 increase productivity and reduce absenteeism.
- 3** Materials passport - A materials passport is created for each individual building, indicating what and where certain materials are applied, how much has been used and how the building can be dismantled.
- 4** Lease products - The products are rented instead of purchased. This ensures lower acquisition costs for a building.

www.park2020.com



Substantial reduction of hazardous medical waste and pharmaceuticals in surface water

Pharmafilter

Converting hospital waste water

The Pharmafilter is a circular innovation with an infrastructure that simplifies working processes. When using the Pharmafilter system, installation and products, hospitals become cleaner and safer, making care easier and more pleasant for patients, staff and visitors.

Operation Pharmafilter

The Pharmafilter is cleaner, easier and more efficient for both patients and nursing staff due to the use of biodegradable disposables and the in-department grinding and removal of waste via the sewage system. This also lowers the chance of human contact with contaminated material.

Fermentation, filtration and oxidation

On the nursing ward, biodegradable bedpans and urinals with contents, hospital waste and leftover food are fed into a 'Tonto' grinder. This waste and the waste water from the hospital travel through the existing sewerage system to the Pharmafilter installation. The liquid and solid substances are separated during the process and treated separately. In a bioreactor, active sludge removes heavy metals, nitrogen and phosphates from the liquid substance. Then a membrane takes care of bacteria and viruses.

After this, multiple oxidation burns the dissolved impurities. Finally, activated carbon filters out the last traces of medicines, X-ray contrast medium and hormone disrupting substances.

After purification by the Pharmafilter system, recycled water can then be used for various applications in the hospital setting. Almost all organic waste, including faeces and bioplastics, is converted into biogas. The remaining waste is disinfected in the installation and undergoes three separate treatments (fermentation, decontamination and ozone). After which the residue is safe to handle.

Reducing medical waste

The idea for Pharmafilter came about in 2008, when Eduardo van den Berg pondered: What if waiting times at hospital elevators could be cut by eliminating the transportation of waste containers simply by flushing waste through the toilet?

Together with the Water Board and the Applied Water Research Foundation (STOWA), Pharmafilter director Van den Berg researched the idea for the Reinier de Graaf Hospital in Delft. After reviewing all waste streams, he realised the existing sewer system could act as a drainage channel to process dirty water and waste in a single system. This substantially reduces hazardous medical waste and pharmaceuticals in surface water.

Partners

Partners in the Pharmafilter project are the Reinier de Graaf Hospital, Delfland Water Authority, and the Applied Water Research Foundation (STOWA). Pharmafilter BV is a contractor. The Pharmafilter pilot project at the Reinier de Graaf Hospital was possible thanks to a subsidy from the European Fund for the Environment (Life) and the Netherlands Enterprise Agency for Sustainability and Innovation (Ministry of Economic Affairs).

International expansion

The Pharmafilter system is currently operating in five Dutch hospitals and the company is finalising contracts with three new hospitals in the Netherlands. Furthermore, the organisation has expanded its operations to Ireland and Germany.

Prizes

The project was awarded with environmental and innovation prizes, including:

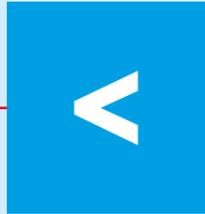
- EEP Award (European Environmental Press award)
- Vernufteling engineering prize
- Aquatech Innovation Award
- Herman Wijffels Innovation Award
- Amstel, Gooi and Vechtstreek Water Authority Water Innovation Prize

www.pharmafilter.nl/en





Over 12,500 plastic fishing people caught 105,000 bottles and filled 2062 bin bags with plastic waste



Plastic Whale

Raising awareness about plastic soup

Plastic Whale strives to keep waterways free of plastic. The organisation takes tourists, school children and businesses on plastic fishing trips in boats made from plastic fished out of Amsterdam's canals. In turn, the plastic they fish out of the water is used to make new boats and more.

Plastic soup

The fishing trips are more than just fun, they raise societal awareness about plastic soup: plastic litter from city streets which is polluting the world's seas via waterways. The Plastic Whale Foundation also organises free events making the general public more aware about the consumption of plastic. In addition, the foundation has developed an educational programme for schools to teach children about plastic soup and the problems it causes.

Plastic Whale teamed up with Vepa Project Furniture and LAMA Concept to design a line of stylish

and practical Plastic Whale Circular Furniture. The proceeds from the sale of the furniture are partly channelled back in the Plastic Whale Foundation projects.

Clearing waterways

Plastic Whale focuses on activating people and getting them involved. So far the Amsterdam organisation has a fleet of ten boats and now also offers tours in the port city of Rotterdam. In total, the organisation has taken over 12,500 people plastic fishing, caught 105,000 bottles, and filled 2062 bin bags with plastic waste.

International impact

The Plastic Whale Foundation wants to have an international impact and has forged a partnership with SweepSmart in Bangalore, India, which collects and recycles waste to create local jobs with decent pay and conditions and reduce plastic waste at landfill sites. The Plastic Whale Foundation hopes it will be one of many worldwide.

www.plasticwhale.com



The textile is made 100% recycled material, without the use of water or chemicals during production

ReBlend and Ahrend

Responsible seating furniture

Every year, about the same amount of textile disappears into waste and incineration as is produced from new materials. Why don't we take discarded clothing and textiles and recycle them into raw materials for new textiles, instead of incinerating them? With this objective, ReBlend started an initiative in 2013 in collaboration with Ahrend.

Circular in the Chain

The goal is to build bridges between textile waste, designers and textile manufacturers so that movement to a circular world is supported and accelerated.

High-quality applications

ReBlend began as an initiative to investigate whether textile waste, which now disappears in low-value applications such as cleaning rags and filling material, can also be used for new yarns and textiles of high quality. In the Netherlands, 200 million kilos of textiles are lost every year to low-value applications. While at the same time the production of new textiles has enormous negative ecological impact. ReBlend keeps textiles in the chain and uses it as a raw material for high-quality textiles,

for both fashion and interior. In August 2014, the first prototype was launched, the Ahrend 2020 office chair upholstered using ReBlend fabric. "Clients have been pleasantly surprised that such an attractive fabric can be produced from discarded material," ReBlend says. The textile used is 100% recycled material, without the use of water or chemicals during production. Since then, a wall panel using ReBlend textiles has also been launched.

Lasting Impact

The underlying reason behind the first initiative and the current development is the fact that there is an extreme imbalance between the short use of textiles and the lasting impact of the materials. ReBlend wants to develop yarns

and textiles in collaboration with designers, producers and fashion labels which provide the same comfort and quality using only recycled material.

www.ahrend.com/en/csr/reblend



**Innovative eco-hub
De Ceuvel: Polluted
plot of land turned
into ‘small piece of
paradise’**

Space&Matter

Urban strategies for a better environment

Space&Matter started out as an architecture firm, but they do much more than just designing buildings. They create urban development strategies, build online platforms and even initiate new business ventures. Everything they do is focused on improving the built environment and promoting a cohesive society.

Schoonschip – a sustainable floating community

A new neighborhood has arrived in the north of Amsterdam. Located in a short, peaceful canal connected to the River IJ, Schoonschip is Europe’s most sustainable floating neighborhood. It consists of 46 homes and a community center, all built on 30 floating plots.

This exceptional project was initiated by a group of enthusiasts with a shared dream. Space&Matter has been working on it since 2010. They helped the group translate their dream into a masterplan where each member could realize

their own home with their own architect. All homes are being built using low-impact circular materials, and Space&Matters’ partner firms Metabolic and Spectral have engineered and realized smart technology for energy sharing. Energy comes from 500 solar panels and heat from 30 water pumps. Even the sewage is reused and turned into biogas and fertilizer in a floating biorefinery. And a third of the roof surface of each house will become a roof garden, helping to cool down the city in the summer.

Schoonschip aims to become a frontrunner in sustainable

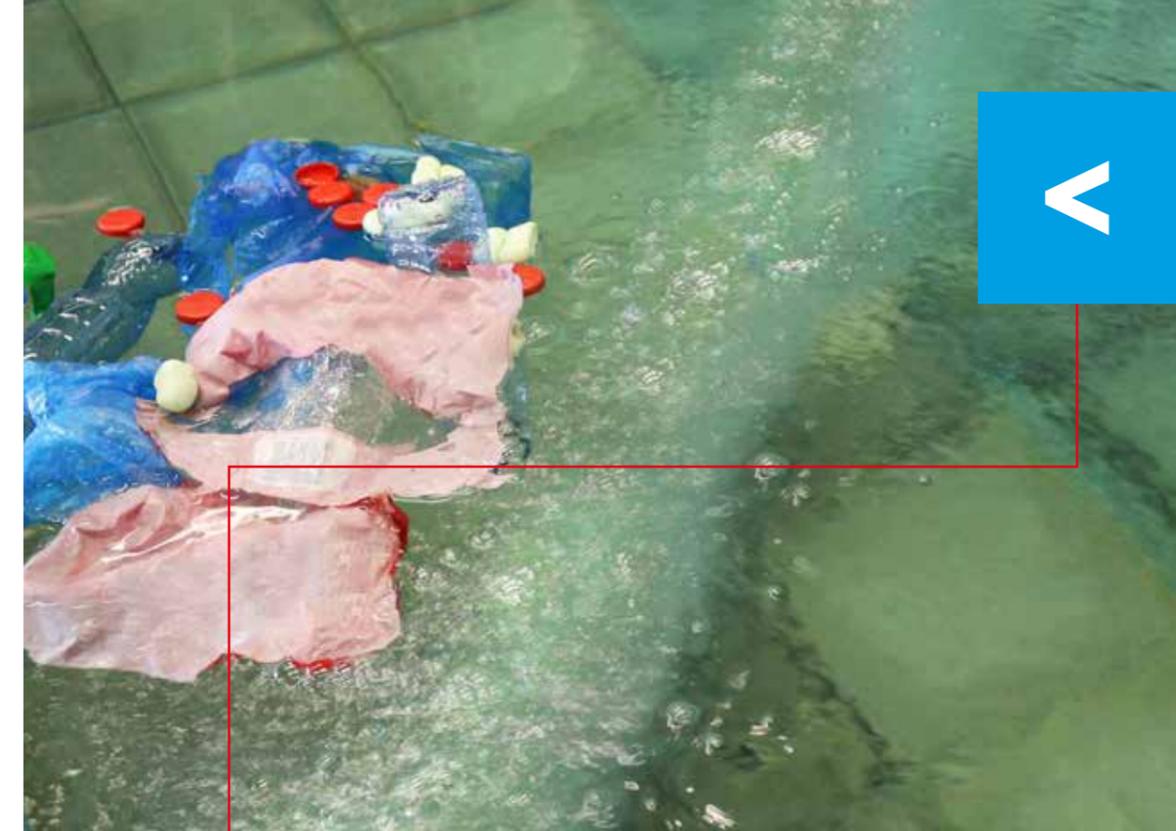
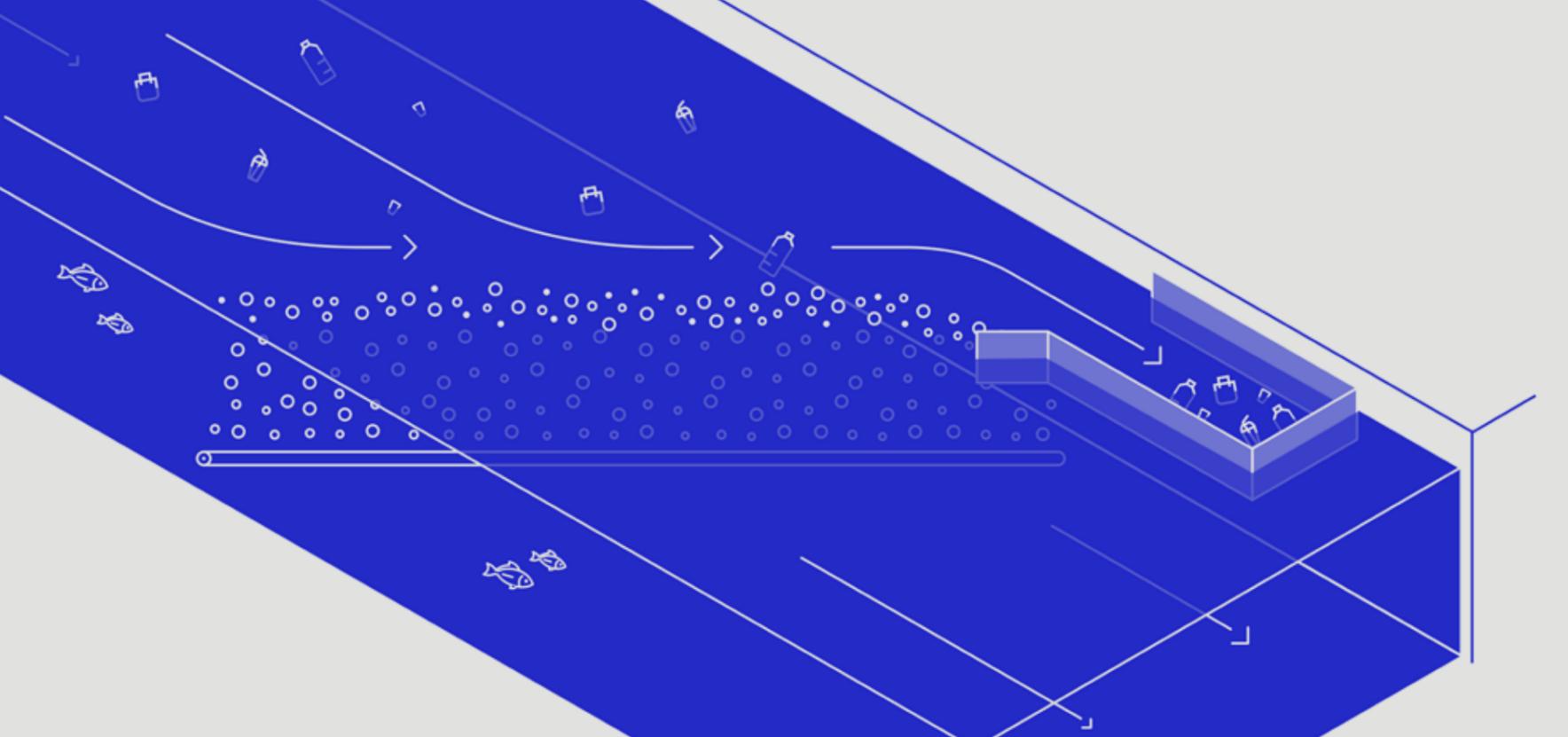
technology by working together and exchanging ideas, from low-tech solutions like using reusable containers for takeaways to high-tech systems such as blockchain technology for the local energy trade.

Cleantech playground De Ceuvel

A polluted plot of land in Amsterdam has been transformed into an eco-hub for creative and social enterprises and a ‘small piece of paradise’ through a community-driven development. Almost all of the buildings are former houseboats, creating a unique feel. The use of clean technologies for

managing water, energy, sanitation and food production, and the fact that the polluted soil is cleaned by plants mean the project is a demonstration of successful closed-loop and regenerative urban development. The social and innovative aspects of De Ceuvel attract hundreds of visitors every week.

www.spaceandmatter.nl



The Great Bubble Barrier

The Great Bubble Barrier stops plastic pollution in rivers close to the source before it reaches the oceans. By creating a curtain of air bubbles, plastic is prevented from flowing downstream without hindering fish or shipping.

Every minute, the equivalent of one full garbage truck of plastic trash is dumped in the sea. In total that is eight billion kilos per year. Eighty percent of those plastics come directly from use on land. The Bubble Barrier creates a wall of bubbles stopping plastics from passing, but allowing fish and ships through unimpeded. This solution can be used any time and anywhere and thanks to a network of global partners, will soon be removing the plastics from the waterways all over the world.

Bubble screen

The Bubble Barrier creates a bubble screen by pumping air through a tube with holes located on the riverbed. Current solutions catch floating debris, but a huge proportion of debris travels underwater. The Great Bubble Barrier creates a bubble curtain from the riverbed to the surface. This upward flow of the bubble barrier brings waste to the surface of the water. The barrier uses the natural current to guide the plastic towards the riverbanks, making it accessible for removal.

Easily scalable

This innovative concept is based on existing technology. It increases oxygen in the water and does not need changes in infrastructure or policies. It is also easily scalable.

Tested

The concept has been extensively tested in collaboration with the Dutch government public works agency Rijkswaterstaat, Deltares and BAM / Van den Herik. After testing the concept in the flumes at Deltares in May 2017, a 180-metre-long Bubble Barrier was placed in the IJssel river at the Dutch city of Kampen in a three-week trial in November. During this test period the European research team proved that the Bubble Barrier works under all conditions. At present the Great Bubble Barrier is focussing on realising a permanent barrier in the Netherlands. In the future, the ambition is to implement this solution in Europe and Asia.

www.thegreatbubblebarrier.com/en

The wall of bubbles stops plastics but allows fish and ships to pass easily



Construction rubble is one of the largest ecological polluters worldwide.

The Mobile Factory

Building the future with Lego

Urban development, war and natural disasters cause homes to turn into mountains of rubble. The debris is seen as waste and used as a foundation for a new highways. But, it can be even more valuable. The Mobile Factory has developed a technique that ensures that construction debris can be used again for the (re) construction of houses.

From the rubble, bricks are baked that have the same shape as Lego

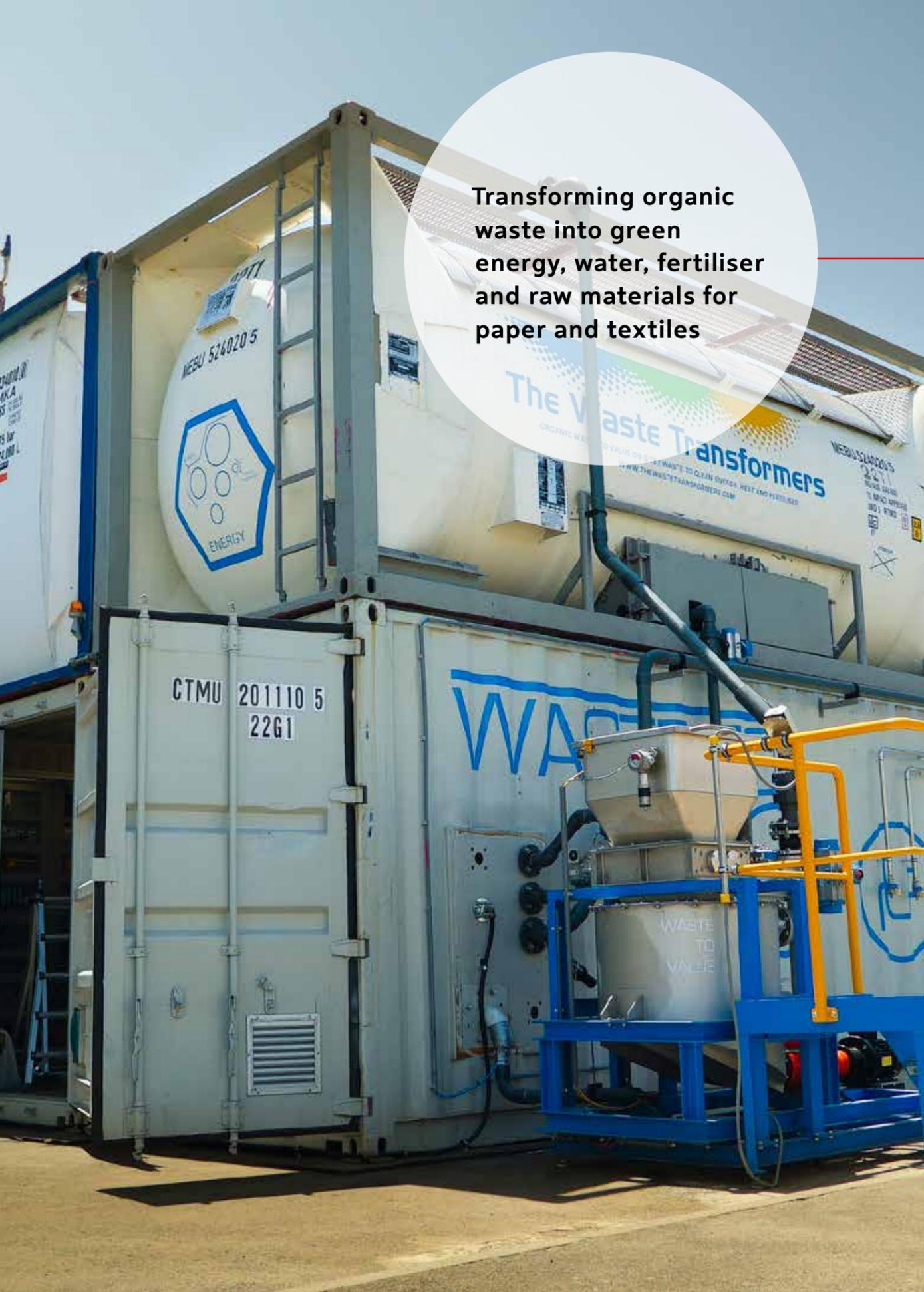
bricks, but of course a lot bigger. The mini factory in which this is done fits into two shipping containers and works according to the simple principle: ground rubble in, Lego blocks out. This has the advantage that very strong constructions can be made without cement, partly with the help of a specially written manual.

That saves time and money, essential factors for people made homeless through disaster. In addition, The Mobile Factory offers training to people in disaster areas so that the victims of a disaster can build themselves dignified, earthquake-resistant homes.

Construction rubble is one of the largest ecological polluters worldwide. It is, in terms of volume, the biggest polluter in the world. It pollutes and destroys the environment and is a danger to public health for people living in a disaster polluted area. The Mobile Factory shows that this debris can be regenerated into primary building material, showing that even rubble has a place in a circular economy. Not only the transformation of rubble into stacking stones is circular, but also the building system itself. An obsolete structure is de-stacked, after which the stones can be used for another building.

www.themobilefactory.org





Transforming organic waste into green energy, water, fertiliser and raw materials for paper and textiles

The Waste Transformers

Turn organic (food) waste into value on-site

Businesses wanting to tackle the issue of their organic waste, currently have limited options. That was until Lara van Druten came up with an innovative solution: The Waste Transformers! The solution transforms organic (food) waste, inside an anaerobic digester called a Waste Transformer housed in 20ft shipping containers, into clean energy, water, high-grade fertiliser whilst also upcycling the waste into new raw materials for paper, textiles or soaps. They do this all on-site where the waste is produced. No transport, no CO2. Impressive.

The Waste Transformers began transforming organic waste into value at an Amsterdam hotspot: the Westergasfabriek, located in a park at a former gas works. Local residents subscribe to the energy The Waste Transformer produces, and the fertiliser makes the park

bloom even more. The company (and partners) guarantee that the energy consumed is 100% local and green. The solution can be applied on-site at any location which produces 600 to 3600 kilos of organic waste per day. Its 'Business in a Box' model even provides local employment in developing countries with support and training from The Waste Transformers.

Freetown, Sierra Leone

The Waste Transformers, together with local partner Masada Waste Management are in the process of realising 40 Waste Transformers in and around Freetown in Sierra Leone. The Waste Transformers recently won first prize at the West African Forum for Climate & Clean Energy Financing (WAFCCFEF-3) for its 26-million-dollar business plan, that advocates a smart, clean, high-impact approach to resource recovery and energy production.

Former prison Bijlmerbajes

The Waste Transformers teamed with OMA Architects and AM Project Developers to redevelop the defunct former Amsterdam prison Bijlmerbajes into a biowaste fueled neighbourhood. It proved a winning combination. A prison

tower will become a green urban vertical park. The organic waste from the neighbourhood will be transformed into clean energy for the building. The vertical park will be fed by the fertiliser produced by the Waste Transformer.

Colombia

The Waste Transformers also inspired a town in Colombia to transform their organic waste streams from a large daily city market into local clean energy. The energy powers the market and creates refrigeration whilst the fertiliser will be used by the farmers selling their produce on the food market to grow new food. A full circular economy around this town's waste streams has been created.

South Africa

A Waste Transformer currently (co) powers a shopping mall in Cape Town. Demonstrating that at N1 City Mall, waste is a resource!

When will you become a Waste Transformer?

www.thewastetransformers.com



In the first international Green Deal, North Sea Resources Roundabout (NSRR), participants ratified their cooperation to give products a new lease of life as secondary raw materials

Van Werven Plastics Recycling

Clean plastics as raw materials

Van Werven Plastic Recycling specialises in creating high-quality raw materials from post-consumer hard plastics, collected from construction waste, industrial waste and municipal recycling centres.

Europe's largest mixed plastic recycling plant

The company has the edge on its competitors in the market as it has developed techniques to sort various types of plastics during the recycling process. Van Werven has a separate stand-alone machine for each type of plastic, as every material has its own properties.

The company employs 300 people who passionately process around 120,000 tons per year, making it Europe's largest recycling plant for mixed plastics. Its success can be attributed to its long-term partnerships with major parties for both the input of plastics and the output of high-quality raw materials. This guarantees the flow of materials and the exchange of knowhow leading to improved business practices.

Award winning

The acclaimed recycling company has received awards from provincial to international levels for its ground-breaking work. Van Werven received the Sustainable Investment Award in October 2017 for its plastic recycling activities in the UK. The company is also active in Belgium and Ireland and wants to expand other countries. It plans to increase growth to 200,000 tons of production in 2020. Van Werven won the Dutch Circular Award 2018 in the Plastics category.

International green deal

Van Werven is an active participant in the first international Green Deal, North Sea Resources Roundabout (NSRR). In 2016, participants from France, Flanders, the United Kingdom and the Netherlands ratified their cooperation in

Brussels to give products which previously went to waste a new lease of life as secondary raw materials. Managing Director Van Werven Plastic Recycling, Van der Giessen explains, "What is important to us is that recycled PVC is given a clear status. But we realise that this kind of process takes time. We have already done a lot of work and research, and that good work is being continued."

www.recyclingplastics.eu



Turning 1.8 million euro per year of waste costs into a source of income

Vitens

Water as a source of the Circular Economy

Vitens supplies clean drinking water to 5.7 million Dutch people. The company primarily uses groundwater extracted from water-collection areas. Some of these collection areas are situated on agricultural land, making the water generally more difficult to purify. Vitens' circular ideas have led to healthy soil, clean sources, and sustainable farmland.

Natural replenishment means that the availability of groundwater is no longer a concern. However, obtainable clean groundwater is an issue because of pollution. This is especially the case with agricultural land, which contains nitrates and pesticides. Vitens has developed a method to retain the food-producing capabilities of the land, while still producing clean drinking water extracted from the groundwater under farmland.

Natural soil improvement

Vitens produces 337 million m³ drinking water per year. In the process about 60,000 tons of byproducts - such as calcium, iron, and humic substances - are released. Back in 2012, Vitens sets itself the goal of using these residual flows as valuable raw materials. Together with parties like Wageningen University innovative processes were developed to separate these byproducts and use them as natural soil improvers. This new way of working has turned a cost item of 1.8 million euro per year into a source of income, enabling the development of new innovations.

Win-win situation

Now that Vitens can produce natural soil improvers such as humic substances and chalk pellets, it is able to cooperate productively with farmers, with whom it shares the same catchment area. It's a win-win situation for both parties resulting in healthy soil, better crop yields, and high-quality drinking water.

www.vitens.com/organisation





The ultimate goal is to get rid of the world's plastic waste.

Wasteboards

Skateboarding on 1,000 recycled bottle caps

Ever wondered what to do with 1,000 scrapped bottle caps? How about having them transformed into a skateboard! Dutch start-up company Wasteboards came up with the world's first environmental friendly skateboard. Using a special process, the company produces unique handmade skateboards using recycled plastic bottle caps.

Collecting plastic bottle caps

The caps are collected at music festivals or, with a little help of PlasticWhale, fished out of the Amsterdam canals. Wasteboards also buys plastic bottle caps from the Royal Dutch Guide Dog Foundation (KNGF), paying KNGF double the price of what they normally would get from recycling companies. Even little kids donate their collected bottle caps to Wasteboards.

How it works

The collected bottle caps are placed on top of the melted plastic shreds in a mould. The 2 parts of

the aluminium mould, weighing 35kg each, are screwed together asserting pressure to the caps and plastics. Through Wasteboards' 3 hour special baking process the shreds and the 1,000 caps melt together into 1 piece. The logos on the caps will remain visible, resulting in their unique and colourful designs. After the board is cut out of the mould and tidied up, the 'trucks' (or wheel suspensions) and wheels are added to the skateboard – in the future these parts will be made out of recycled materials too.

Mobile ovens

Apart from baking the boards in their workshop, Wasteboards also brings their mobile wasteboard bakery - transporting it in a large container - to the festival location, a world's first. Visitors can bring their own bottle caps and through the same process as in the workshop, have the skateboard baked onsite.

Skateboarding into the future

Wasteboards' mission is to help solve the world's plastic waste problem. They hope to export their idea and have their mobile wasteboard bakeries installed in coun-

tries around the world where there is a surplus of plastic waste. Initial contacts have already been established in Mumbai, Rio and Manilla.

The ultimate goal is to get rid of the world's plastic waste. As Wasteboards co-founder Jonathan Morrison says: "We're in business to go out of business!", meaning that Wasteboards will cease to exist when it ultimately runs out of raw materials (plastic waste) and that is a good thing.

www.wasteboards.com





Colophon

This publication is produced by Holland Circular Hotspot, Amsterdam Airport Area, amsterdam inbusiness and Amsterdam Trade & Innovate.

Coordination

Diana de Graaf, De Graaf & Co
Marie-Jeannine Citroen

Design

GH+O Communicatie en Creatie

Editor

Holland Branding

Printing

Pantheon Drukkers used 100% recycled paper.

Credits

Though great care has been taken in the preparation of this publication, Netherlands Enterprise Agency cannot be held liable for damages of any kind arising from its use. Nothing in this publication may be reproduced or made public by means of print, photocopy, microfilm or any other method without the prior written permission of the publisher.

July 2019

Amsterdam Airport Area (AAA) & amsterdam inbusiness (AIB)

AAA is partner of Amsterdam Inbusiness, the official foreign investment agency of the Amsterdam area. The public-private association AAA facilitates international companies locating their business in the Amsterdam Metropolitan Area, free of charge and on a confidential basis. Are you interested in expanding your sustainable business?

Please contact Marie-Jeannine Citroen: m.citroen@sadc.nl
www.iamsterdam.com/business

Amsterdam Trade & Innovate

Amsterdam Trade & Innovate works to connect regional enterprises with innovative business opportunities in foreign markets, opening up doors and speeding up the process of doing business abroad.

www.iamsterdam.com/amsterdamtrade

Holland Circular Hotspot (HCH)

HCH wants to support, link and exchange international cooperation, knowledge and best practices with the aim of creating CE business opportunities for Dutch and Foreign companies achieving international exchange of CE knowledge and innovation.

www.hollandcircularhotspot.nl
info@hollandcircularhotspot.nl

Office location

C-Bèta

Rijnlanderweg 916
2153 MN Hoofddorp
The Netherlands
www.c-beta.nl

www.iamsterdam.nl/business
www.hollandcircularhotspot.nl