



Breakfast Inspiration Session – Circular Economy

16 November 2023





Program of the Day

1. Welcome and opening: Laure Wessems-Chibrac
Idriss Nor

2. Presentation: Andrea Rusman & Leanne Heuberger

3. Presentation: Gillian Gailliaert

4. Presentation: Nathan Buijs

5. Presentation: Bas van Wieringen

6. Q&A

7. Closing: Laure Wessems-Chibrac

NAB
DOEN Foundation
Impact Institute
PGGM
Invest NL
PeelPioneers



DOEN Foundation

Idriss Nor

Executive Director



NAB

Laure Wessemius-Chibrac

Managing Director



Impact Institute

Andrea Rusman

Food Transition Lead

Leanne Heuberger

Senior Consultant

Breakfast Inspiration Workshop - Circular Economy

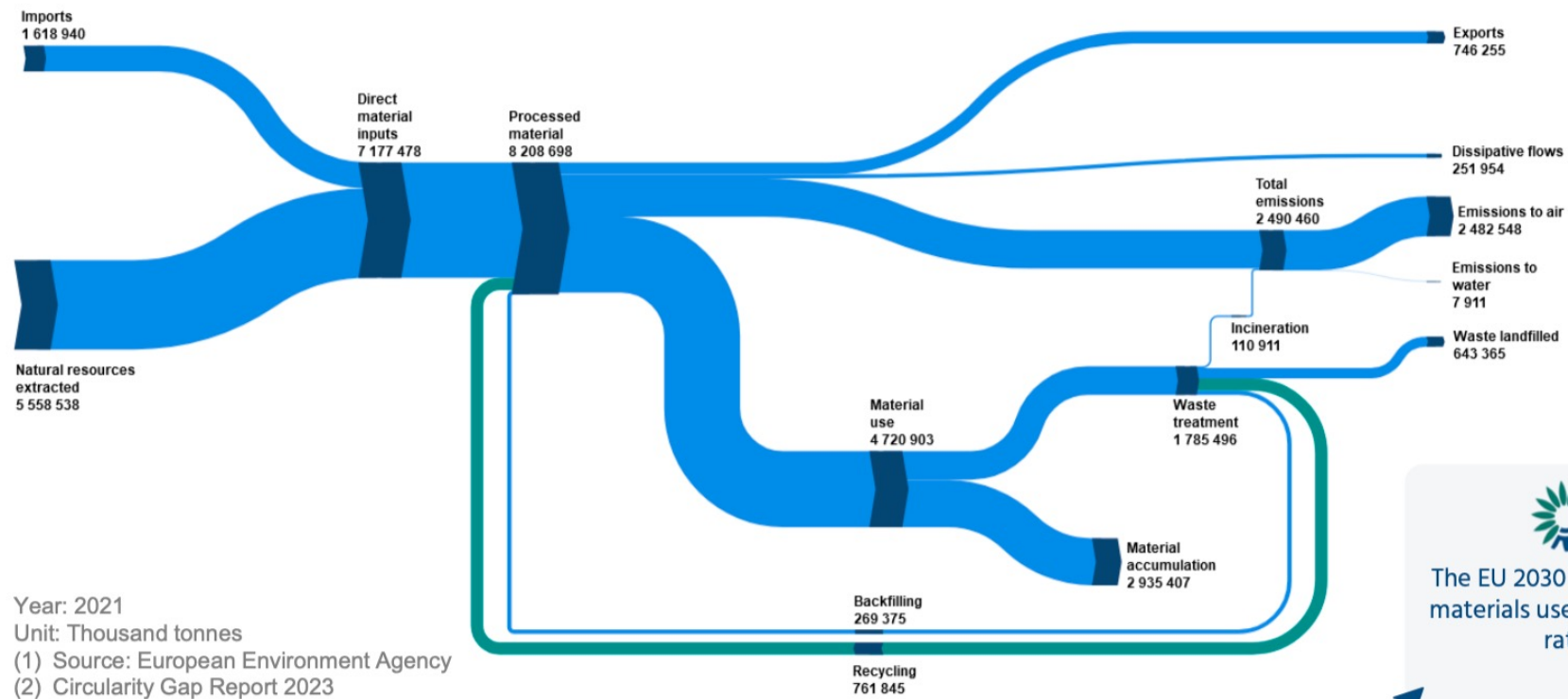
16 November 2023

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CIRCULAR ECONOMY FLOW OF MATERIALS IN THE EU

In 2021 - the rate of circularity of material use in the EU was 11.7%⁽¹⁾, and 7.2%⁽²⁾ in the world



Year: 2021
 Unit: Thousand tonnes
 (1) Source: European Environment Agency
 (2) Circularity Gap Report 2023

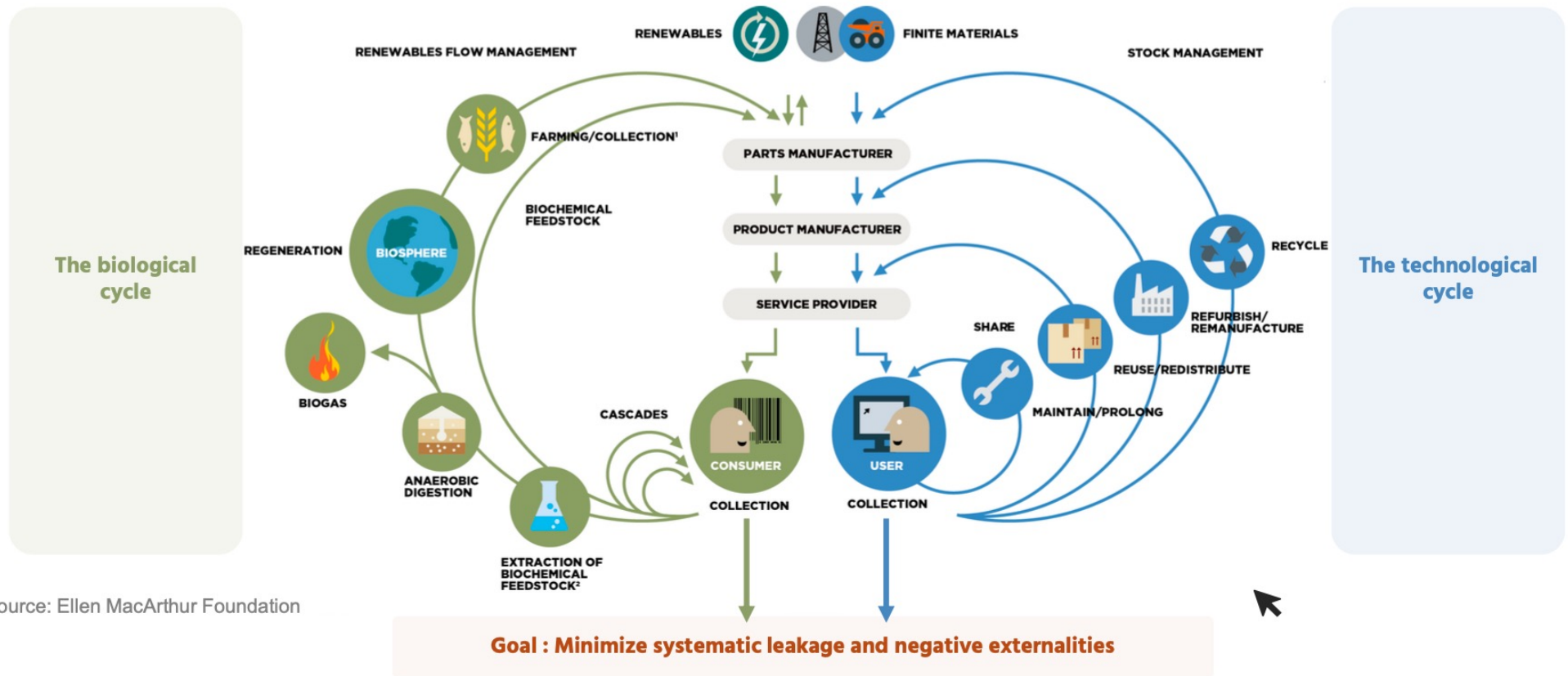
 European Environment Agency

The EU 2030 target for circularity of materials used is to double the 2021 rate and reach:

23.4%

CIRCULAR ECONOMY INVESTING IN THE TRANSFORMATION OF FLOWS

The “butterfly diagram” allows to visualize the circular economy



Source: Ellen MacArthur Foundation



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CIRCULAR ECONOMY TRUE PRICING AND “POLLUTER PAY” PRINCIPLE

The dutch national programme for circular economy '23-'30 uses both approaches

Legend



Environmental costs

CO2 emissions, pollutions, effects on health



Social costs

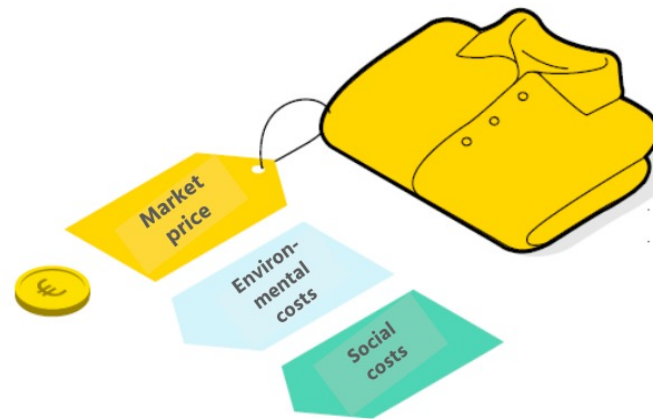
Workplace safety, fair wage, social security



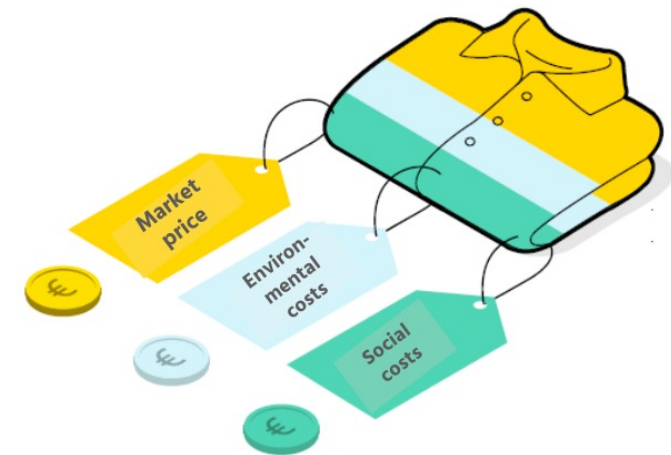
Transferring societal costs

Shifting costs to others, such as citizens and future generations

Product without societal costs being accounted for



Product with societal costs accounted for in the price



Visual: Rijksoverheid; Nationaal Programma Circulaire Economie



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INDUSTRY EXAMPLE CEMENT, STEEL AND CHEMICAL INDUSTRIES (1/2)

All three industries generate high negative externalities and rely on low circularity

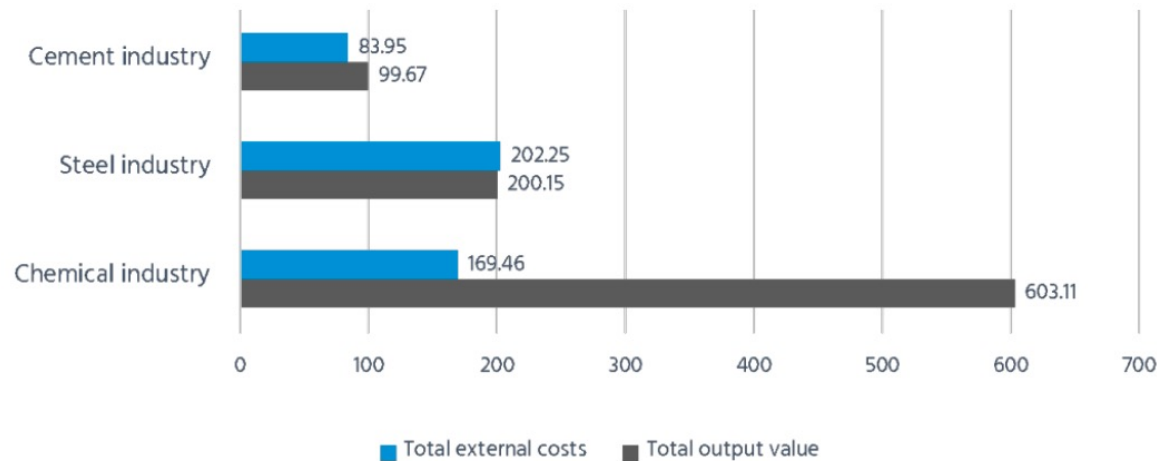
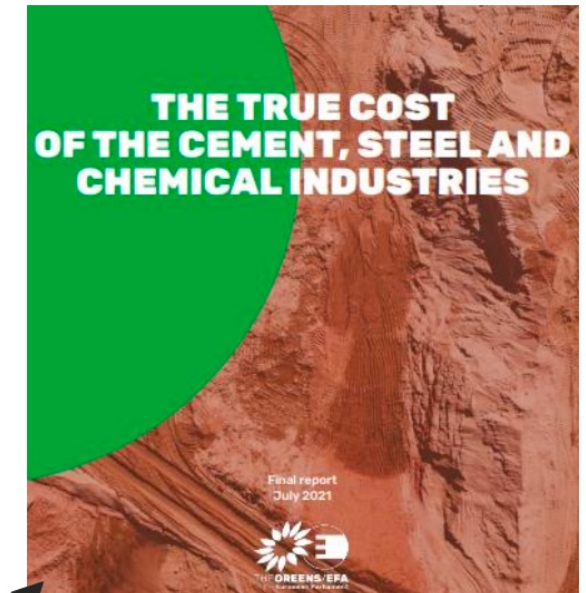


Figure 8: Total external costs and output value per EU27 industry in 2019 (in billion euros)



INDUSTRY EXAMPLE CEMENT, STEEL AND CHEMICAL INDUSTRIES (2/2)

Investing into more green and circular products reduces negative externalities

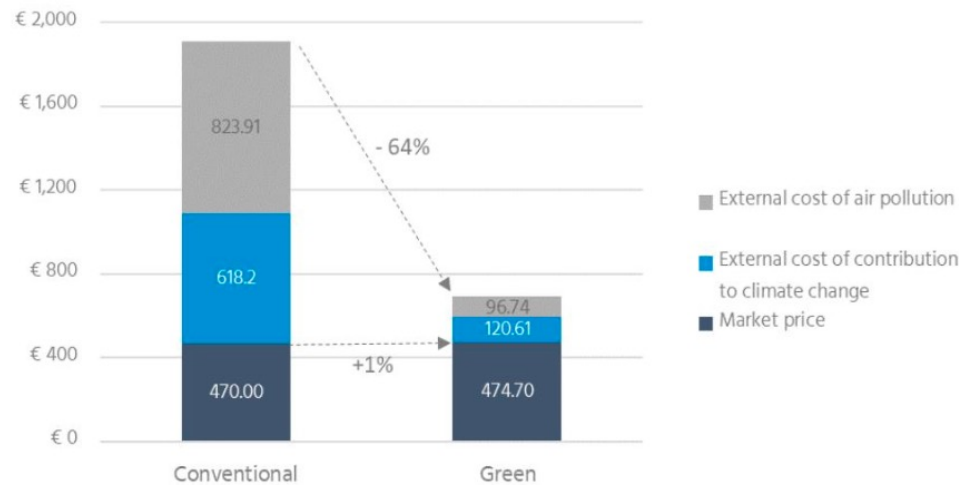


Figure 18: True cost estimate of a steel product in 2019 (EUR/tonne product)

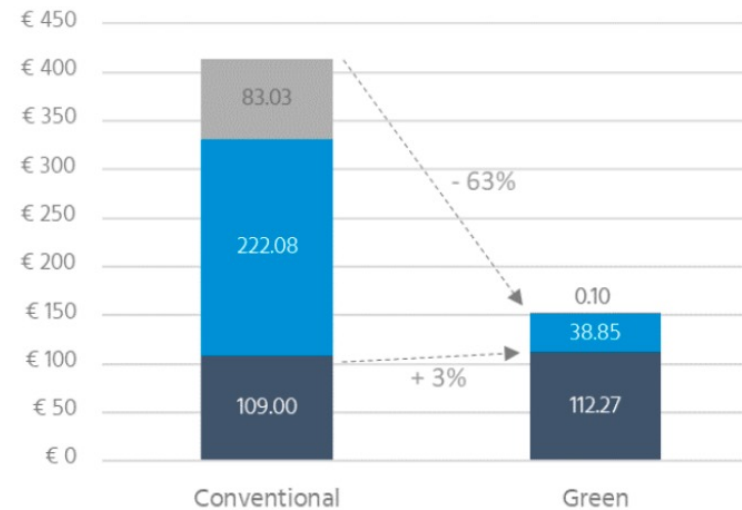
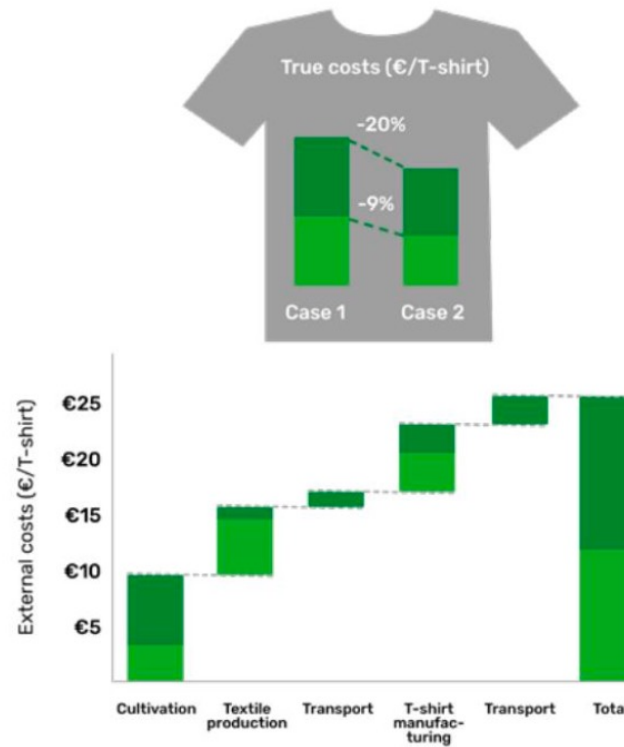
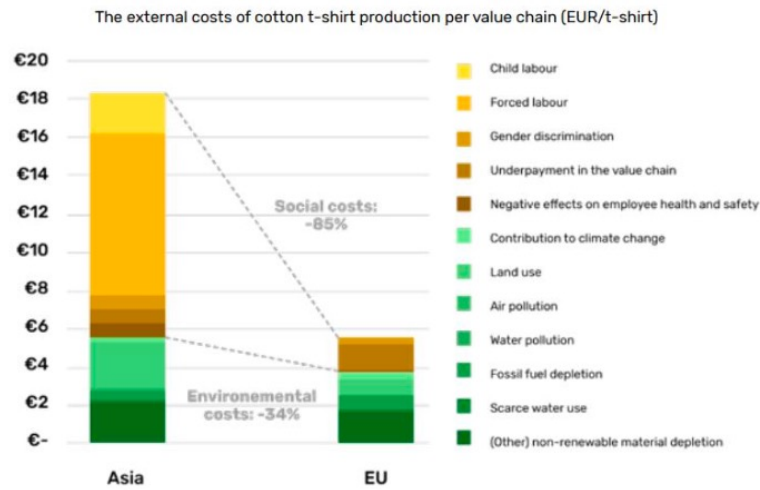


Figure 17: True cost estimate of a cement product in 2019 (EUR/tonne product)



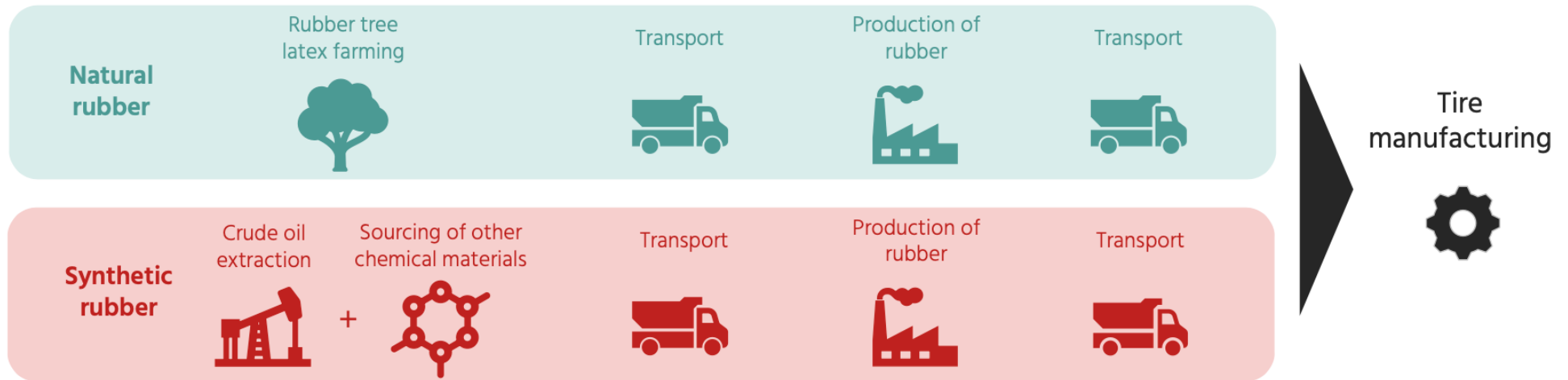
INDUSTRY EXAMPLE COTTON TEXTILE INDUSTRY

Approaching circularity at product-level provides insights for investment decisions



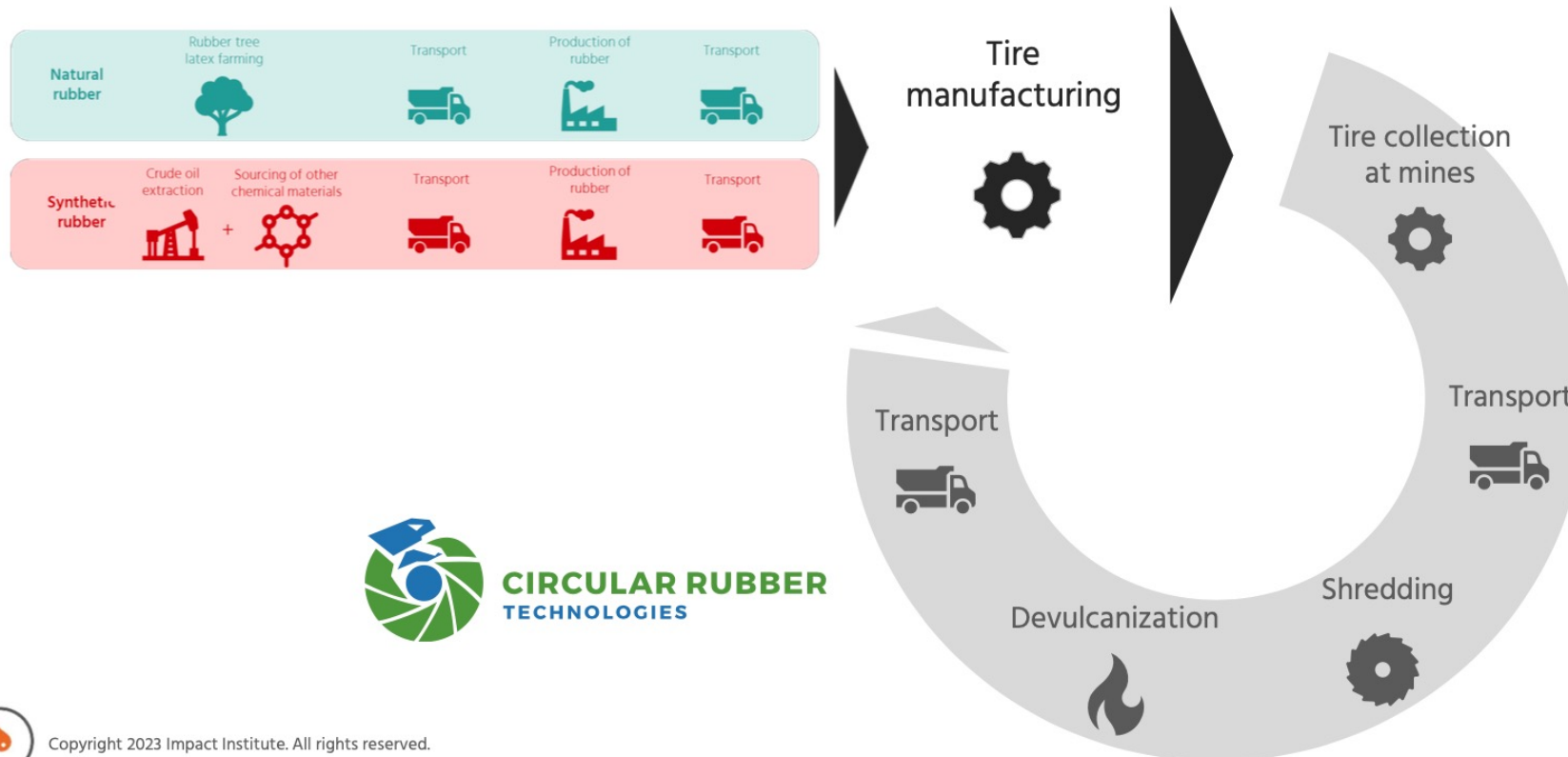
INDUSTRY EXAMPLE RUBBER INDUSTRY (1/2)

Exploring value chains is key to minimizing negative externalities and improving circularity



INDUSTRY EXAMPLE RUBBER INDUSTRY (2/2)

Circular business models and reducing externalities go hand-in-hand



REGULATORY EXAMPLE CSRD, MODULE E5 OF ESRS

Regulatory requirements applicable to investors will integrate guidance on circularity

European commission proposal for a directive

Twelve draft ESRS | Cross-cutting and topical standards (Environmental and social topics)

ESRS E5
Resource use and circular economy



Brussels, 21.4.2021
COM(2021) 189 final
2021/0104 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting

(Text with EEA relevance)

{SEC(2021) 164 final} - {SWD(2021) 150 final} - {SWD(2021) 151 final}

Draft ESRS 1 General requirements

Topical standards
Environment

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E1
Climate change



November 2022



Draft ESRS 2 General disclosures

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E2
Pollution



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DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E3
Water and marine resources



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Draft ESRS E1 Climate change

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E4
Biodiversity and ecosystems



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Draft ESRS E2 Pollution

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E5
Resource use and circular economy



November 2022



Draft ESRS E3 Water and marine resources

Draft ESRS E4 Biodiversity and ecosystems

Draft ESRS E5 Resource use and circular economy

EXPOSURE DRAFT

ESRS E5
Resource use and circular economy

April 2022



Open for comments until 8 August 2022

PTF-ESRS
Project Task Force on European sustainability reporting standards



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HOW TO START ?

START PRIORITISING

START MEASURING

KNOW YOUR POLICIES



THANK YOU FOR YOUR ATTENTION



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PGGM

Gillian Gailliaert

Responsible Investment and ESG specialist

PGGM and the circular economy

November 2023

Gillian Gailliaert- Responsible Investments



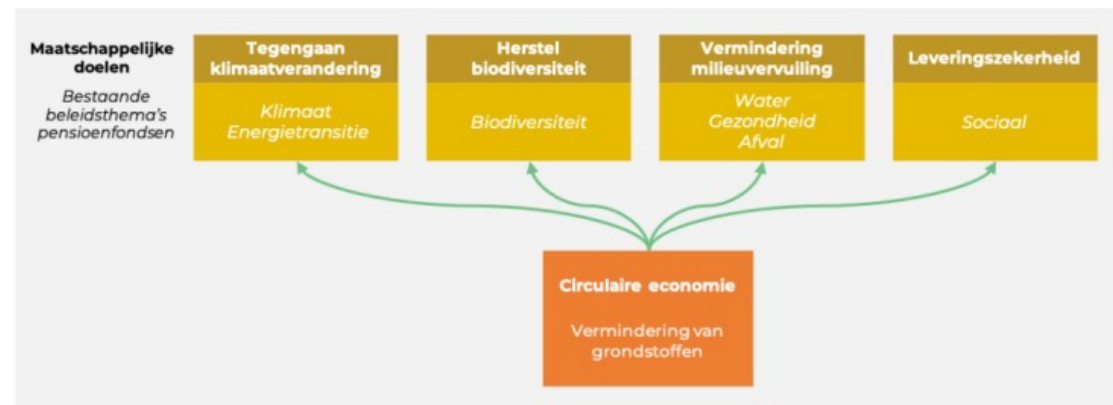
PGGM

- Gillian Gailliaert, Responsible Investments at PGGM
- PGGM is a Dutch asset manager that manages the assets of the Dutch healthcare pension fund (Pensioenfonds Zorg en Welzijn)
- Manages the assets of 4.3 million participants
- Currently 221 billion EUR asset under management



Circular economy – relevance for FI's

- **Regulatory:** Netherlands' and EU economy to be circular by 2050
- **Risk management:** identifying and quantifying linear risks enhances ESG risk management
- **Impact investing:** investments in companies that impact society positively
- **Also, a means to an end:**



Source: Sustainable Finance Lab (based on figure from PBL, 2023)

PGGM – circular economy in practise

Circular economy in Responsible Investment policies

- CE not explicitly included in investment policies
- Implicitly addressed by climate- and Sustainable Development Investments-related policies

Circular economy in Responsible Investment execution

- DNB's Kopgroep Circulair Financieren
- Pensioen Federatie werkgroep Circulaire Economie
- UNPRI Circular Economy Reference Group
- CE objectives integrated in climate-related engagements with chemical sector companies
- AsYouSow single-use plastics producer engagements

Case study: SCW systems



Contact details

For questions or requests, you can contact me at:
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Invest NL

Nathan Buijs

Impact Engineer

Circularity

Investment due diligence by Invest-NL

Invest-NL: de nationale financierings- en ontwikkelingsinstelling

Invest-NL was founded in December 2019 with a dual purpose: financing and realizing **societal transitions** and providing **access to entrepreneurial finance**.

Our strategy:

We make the **Dutch economy sustainable and innovative by mobilizing capital**: from Invest-NL itself, from market parties, from governments and from the European union. By using our knowledge and networks. By developing new markets, improving investment propositions and designing **new financing instruments and models**.

In this way we make financeable what seems unfinanceable. In this way we also make it more attractive to invest for other parts. **Societal impact** is our goal, returns are the means.

Planet

Carbon neutrale en circulaire economie

Aanvullende impact
(afhankelijk van investering):



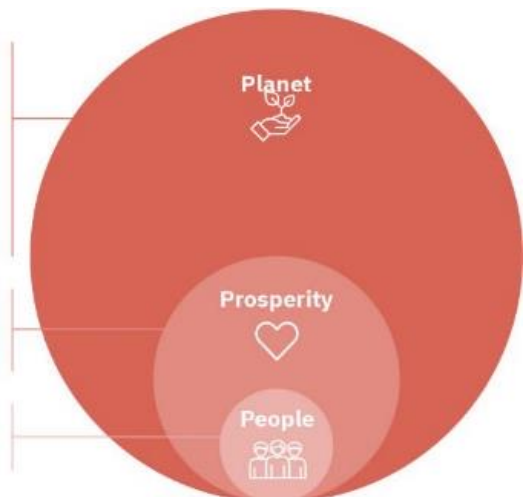
Prosperity

Innovatie en ondernemerschap



People

Betere betaalbare en toegankelijke zorg





Capital

We offer patient and risk-taking capital for entrepreneurs who want to make the Netherlands more sustainable and innovative:

- Financing companies
- Financing investment funds



Business Development

We make financeable what seems unfinanceable through:

- Financial product development
- Market development
- Proposition guidance

Investment process

Our investment process is divided into different phases in which we analyse the investment opportunity;



- GIIN principles
- Theory of change
- Alignment with strategic positioning
- EU Taxonomy check
- Exclusion criteria check

- Application of circular strategy
- Circular transition indicators
- Prevented raw materials use

- ESG questionnaire
- Engagement plan
- ESG & Impact clauses

Frontrunner case: BYBORRE's solution

BYBORRE approaches the design and production of textiles through a radically innovative Textile-as-a-service approach. They achieve this by digitizing the design process and producing locally and responsibly.

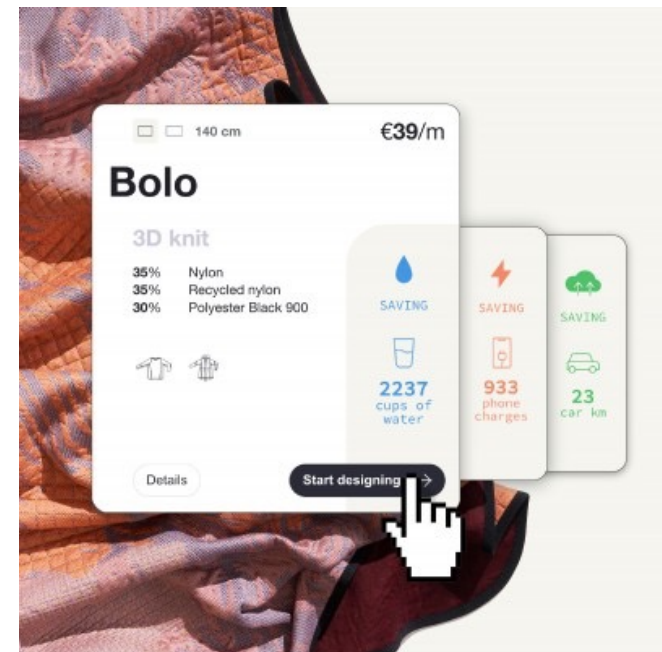
Problem statement: unsustainable industry

The textile industry is extremely harmful and polluting to the environment. Moreover, the industry is renowned for its obscurity and poor worker conditions, which include modern slavery.

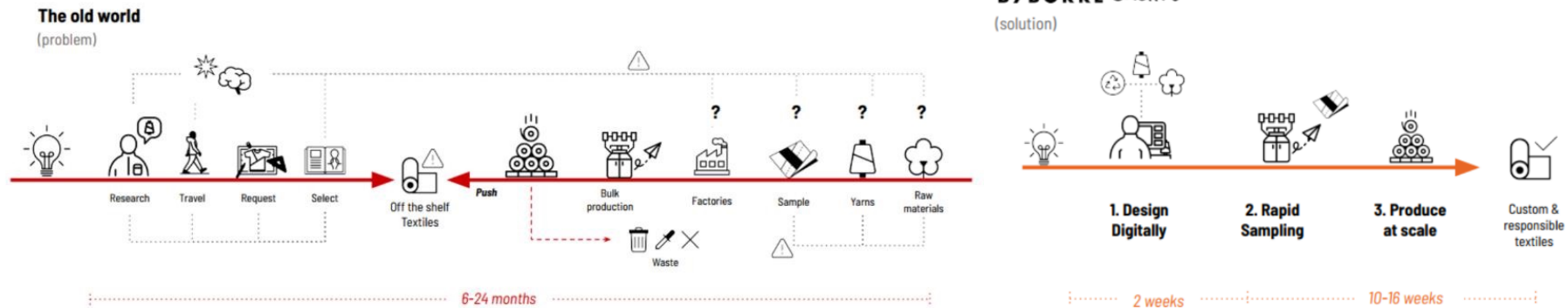
- Responsible for 5-8% of the total global greenhouse emissions.
- 20% of the industrial water pollution and 35% of microplastic pollution.
- 23% of global chemical use.

Activities: transparent sustainable textile creation

- Through BYBORRE's Create platform, clothes designers are informed about the textile's impact within the design process. All textiles come with a **material passport, which is** shown to the customer.
- The textiles can be **designed digitally and produced locally** on-demand. This eliminates the amount of pre-production waste and the necessity for long-distance travel.
- All yarns from BYBORRE comply with a minimal standard on sustainability and responsibility. Yarns are selected based on **certifications and recycled content**.



Frontrunner case: BYBORRE's impact



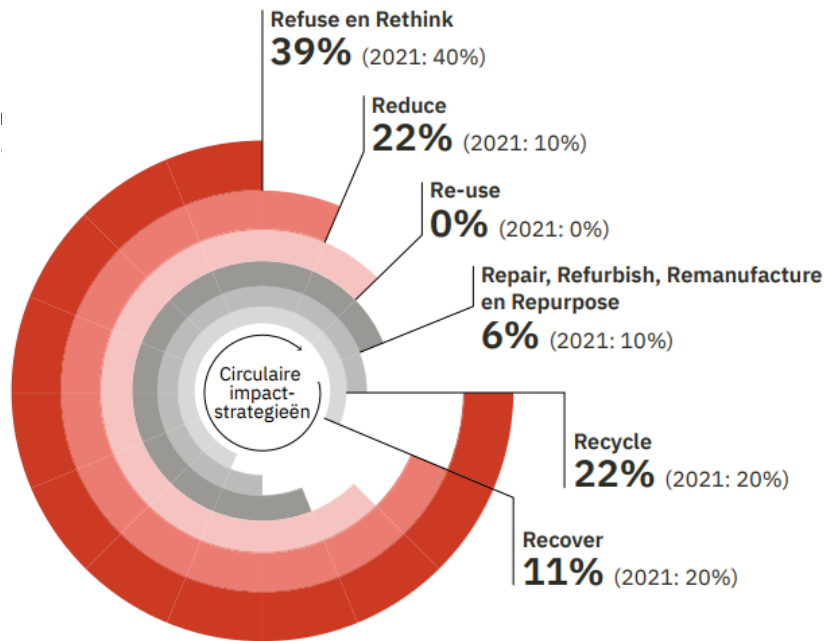
BYBORRE's radically different approach allows it to **create a positive impact** in different stages of the clothing value chain.

- The highest circular strategy is applied, by completely **rethinking** the production process and product.
- A **CTI score of 52% is achieved**, which is a **doubling compared to conventional fabrics**. BYBORRE's inflow consists of 62% recycled and renewable content, and the outflow is 42% recoverable.
- For every ton of fabric produced by BYBORRE, **half a ton of virgin plastic** is prevented (mainly polyester and nylon).
- *A reduction of 60% of the fabric's carbon footprint is achieved, most notably due to used materials, prevented travel, and prevented waste.*
- *For every ton of fabric produced by BYBORRE 120 CTUs and 15.000 liters of water are prevented.*

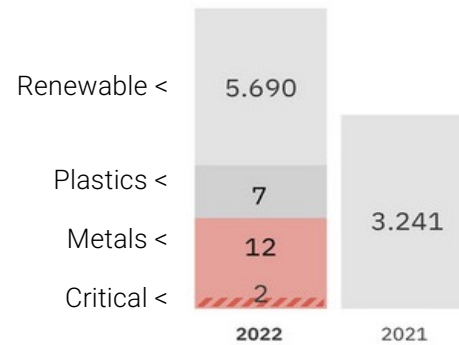


Invest-NL reporting

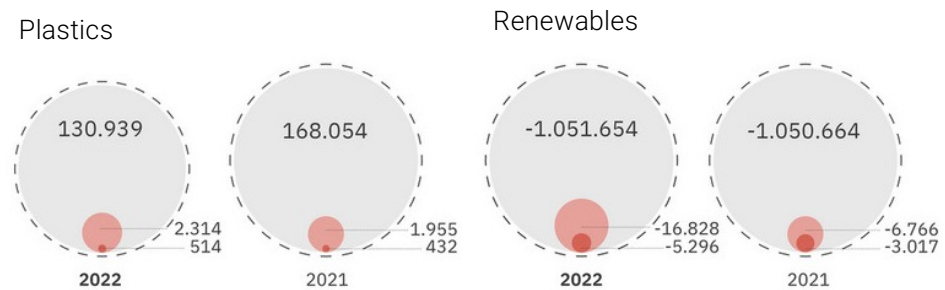
In its annual report, Invest-NL reports on both the negative and positive impact it has achieved over its whole portfolio. This includes the same impact areas for a circular economy, namely the applied circular strategies, raw material use and prevented use and achieved CTI score by companies.



Raw materials use



Prevented raw material use





PeelPioneers

Bas van Wieringen

Co-Founder



TURNING CITRUS WASTE
[BACK] INTO VALUABLE
INGREDIENTS





80 bln kg of delicious citrus juice is produced yearly.

Derived from **160 bln** kg citrus fruit

Resulting in **80 bln** kg of citrus peel (waste)



WE ARE PEELPIONEERS

A CIRCULAR FOODTECH COMPANY WITH A PASSION FOR PIONEERING

**WE SAVE CITRUS PEEL FROM MIS USE AND KEEP IT IN THE
VALUE CHAIN**

BY TURNING IT INTO VALUABLE INGREDIENTS



INPUT OF CITRUS PEEL

Today we process the peel from most of the retailers in the Netherlands, 7 trucks each and every day

Renewi, the biggest commercial waste company in NL, is our logistics partner and collects the peel for us

To save more peel in the future we will collect and process citrus peel from the juicing industry



OUTPUT OF INGREDIENTS

With our protected technology we process the peel into food ingredients

Orange oil and candied orange cubes we produce and sell for 5 years and are growing revenue every year

Our newest innovation is the industrial scale production of citrus fiber. This will be the driver of our growth



APPLICATIONS OF OUR INGREDIENTS



FOOD PRODUCTS



COSMETICS



**NON-FOOD
PRODUCTS**



CLEANING AGENTS

FINIX[®]

CITRUS FIBER

Your natural solution



FINIX[®]

CITRUS FIBER

*TAM is \$10 bln with a
4% CAGR*



OUR COMMITMENT TO SDG'S

SDG 12: Responsible Consumption & Production

We repurpose discarded citrus peels that would normally go to waste, creating a sustainable and circular business model.



SDG 8: Decent Work & Economic Growth

We provide employment opportunities for people who might otherwise be excluded from the labour market.



SDG 13: Climate Action

By reducing organic waste in the production process, we contribute to the reduction of greenhouse gas emissions and fight climate change.



GREENHOUSE GAS EQUIVALENT AND SAVINGS*



ORANGEADE

CO₂-eq INDICATOR

Orangeade is a product that is made from tiny orange peel cubes that are candied. To prepare the peel, it needs to be washed thoroughly. Therefore, the main impact comes from clean water and wastewater treatment.

CPO & FFO

CO₂-eq INDICATOR

By pressing and rolling the orange peel in a mechanical machine, oil can be extracted. The peel needs to be washed and the machines use electricity to realize the extraction. Therefore the main impact comes from water and electricity.

CITRUS FIBER

CO₂-eq INDICATOR

The pulp after extracting the oils is used to make fiber. The fiber process consumes most of the total gas and electricity input. In addition, a solvent and cooling water are used here. As a result, the largest impact is attributed to this process given the energy and materials.

* for processing 1000 kg fresh orange peels

SUSTAINABILITY

At PeelPioneers we have a circular business model. To track the Greenhouse gas emissions and savings

LIFE CYCLE ASSESMENT

Processing orange peels saves more CO₂ than when they are incinerated. ISO 14040:2006 LCA shows 700 + 156 kilo CO₂ saved per ton peel.

Value of avoided emmision

At full capacity we save as much CO₂ annually as is emitted by flying 1900 times to the south of Spain.

PAST, PRESENT & FUTURE



**DEMO
PEEL FACTORY
IN SON**

2018



**BUILDING 30 KTON
FIBER FACTORY IN
SPAIN, MURCIA**

2024



2017

**FOUNDING OF
PEELPIONEERS**



2021

**INDUSTRIAL
SCALE FACTORY
IN DEN BOSCH**



FUTURE

**MARKET EXPANSION
EUROPE & SOUTH AMERICA**

8 kton / 8fte / 3 ingredients

15 kton / 50 fte / 5 ingredients

150 kton / 10 factories



FUNDING FOR GROWTH STRATEGY

Series B H2 - 2024

FOR THE NEXT STEPS WE HAVE AN INVESTMENT NEED
OF €30-40 M WITH AN EQUITY PART OF 50%

INCREASE OF FIBER PRODUCTION (10%)

Raise fiber production in
the current factory to
maximum capacity

START SPAIN OPERATIONS (80%)

Construct 2nd industrial factory and
start peel collection and fiber production
in the Murcia region in Spain.

INNOVATION TO DEMO PHASE (10%)

Bring a very promising and
protected innovation to increase
the value/ton to the demo phase



CONTACT



www.peelpioneers.nl



@Peel.Pioneers



@PeelPioneers





Q&A





Thank you for attending this event!

Please fill out the Evaluation Form. 7 questions and takes only 2 mins

