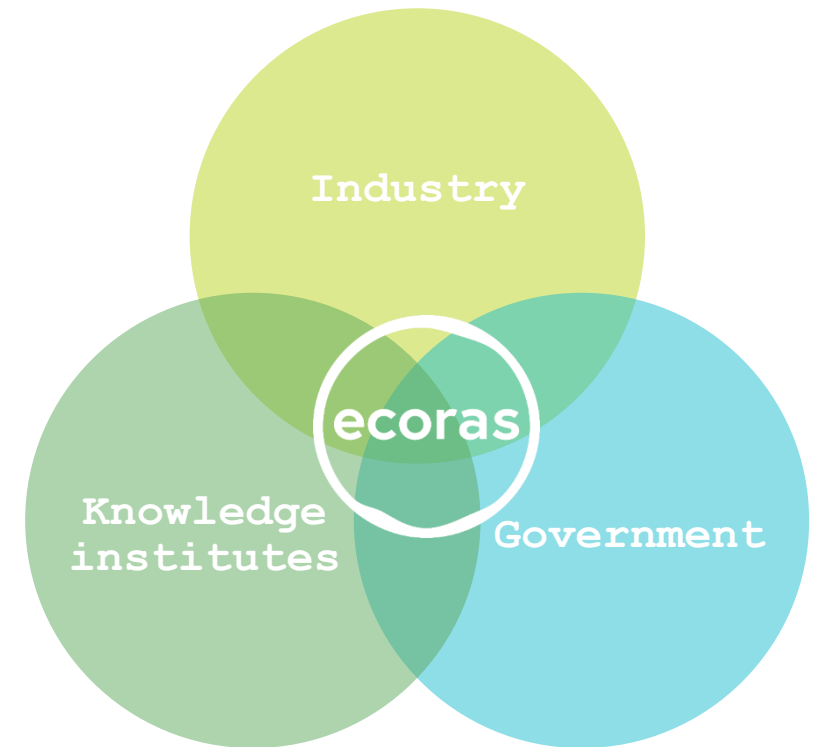


# We realize Circular ambitions

# About Ecoras



- Unique mix of consultants, researchers and change-makers
- Our focus
  - Circular & Bioplastics
    - Chemical Industry
  - Biobased Economy
    - Agri & food sector
- Our knowledge fields
  - Chemical engineering
  - Business development
  - Life Cycle Analysis/CO2 footprint
  - Data science



# Our services



## Measure



- Life Cycle Assessment (LCA)
- CO<sub>2</sub> footprint (GHG)
- Circularity performance
- Impact Due Diligence



## Research



- Lab research
- Resource availability studies
- Market research
- Development in legislation & policy



## Collaborate



- Project management
- Innovation tracks
- Circular value chain initiation



## Implement



- Policy & strategy development
- Law & regulation
- Impact monitoring & reporting
- Business case study



Life Cycle Analysis



Value Chain  
Development



Greening of the Chemical  
Industry

## CO<sub>2</sub>-footprint

Impact category

Climate Change



Global warming

For

Products / organisations

Added value

- Simple benchmark
- Scope based approach
- Highlights impact hotspots
- Fit for monthly/yearly monitoring

## Environmental impact analysis

Climate Change



Global warming



Mineral resource depletion



Non-renewable energy resource depletion



Land use



Water scarcity footprint



Acidification



Terrestrial eutrophication

Ecosystems



Freshwater eutrophication



Marine eutrophication



Freshwater ecotoxicity



Ozone depletion



Human toxicity non-cancer effects



Human toxicity cancer effects



Particulate matter



Ionising radiation



Photochemical ozone formation

Products / services

- Overall environmental performance
- Product/service comparison
- Product design iterations
- Scenarios and modelling

# Goal and scope

## Scope

## Approach

## Goal



Quick Scan

Based on global analysis  
& industry averages

- Global understanding of environmental performance
- Rough indication for customers
- Subsidies (R&D related)



Exploratory  
analysis

In line with core  
principles

- ✓ ISO / EN
- ✓ GHG Protocol
- ✓ PEFCR/PCR

- Sustainability strategy company/product
- Understanding environmental performance of products/processes (relative to business-as-usual)
- Subsidies & investments



Full  
analyses

According to:

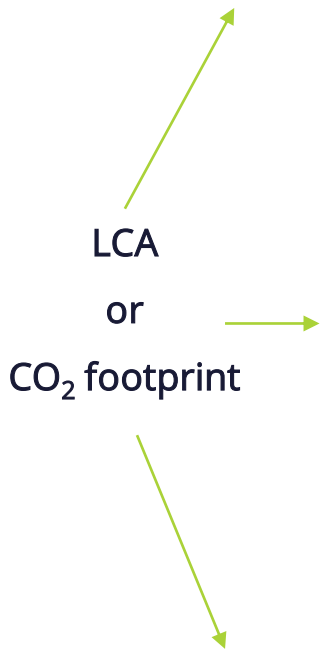
- ✓ ISO / EN
- ✓ GHG Protocol
- ✓ PEFCR/PCR

- Comprehensive insight into environmental performance
- Environmental Product Declaration (EPD)
- Product Carbon Footprint
- Certification
- Subsidies & investments

LCA

or

CO<sub>2</sub> footprint



## Development of impact tools (excel based)

- Rubber recycling tool
- Plant-based snack ‘bitterbal’
- Biodegradable plastic (PHA)
- Consumer electronics
- Chemical recycling
- Refurbished machine parts
- Duckweed valorisation



- Value chain
  - Building regional value chains
  - Strengthening relationships
    - Innovation
    - Industry
    - knowledge institutes
    - government





- Goal of Greenwise Circular Plastics:
  - Valorisation for and with the industry
- Our role:
  - Building of the ecosystem
    - Technological
    - Other disciplines: legislation, economics, etc.
  - Project development, including financing
    - Innovation
    - Application

The logo for Greenwise Campus, featuring the words "greenwise" and "campus" in a light green, lowercase, sans-serif font, stacked vertically on a dark blue square background.

greenwise  
campus

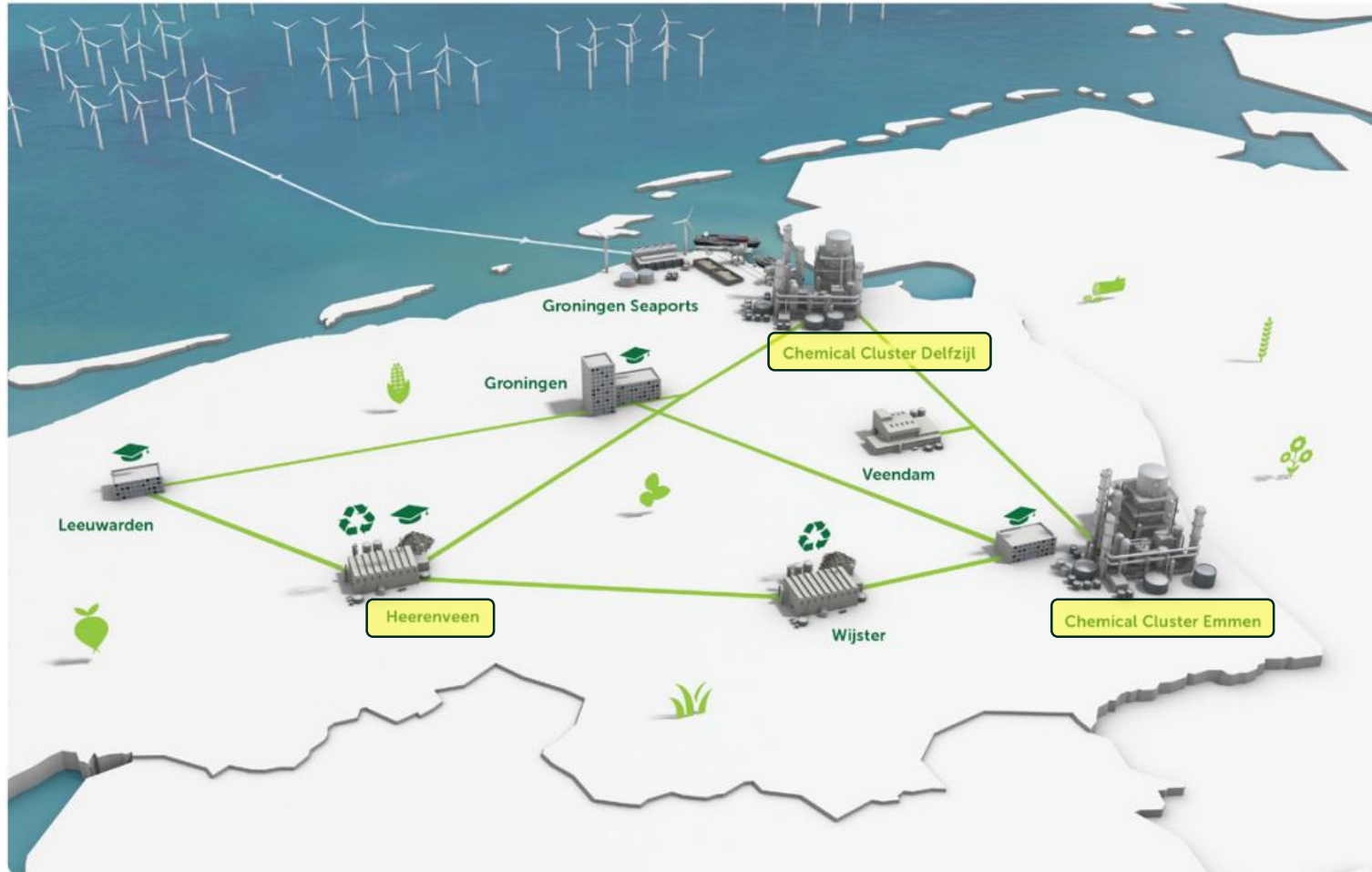
- Circular Polymers
- Biomass
- Hydrogen
- Carbon dioxide



Chemical Cluster **Delfzijl**

- 15% of all output of chemical industries in the Netherlands comes from Chemport Europe
- Switching to renewable raw materials and green processes in chemistry.

# Chemport Europe



- Suikeragenda
- Wad van Waarde
- Koopmans
- Inventarisation of biobased raw materials

- **Suikeragenda**
  - Wad van Waarde
  - Koopmans
  - Inventarisatie van biobased raw materials
- Finding new sources of sugar to be used as raw material for the chemical industry
    - Sugar kelp
    - Wood chips



- Suikeragenda
- **Wad van Waarde**
- Koopmans
- Inventarisatie van biobased raw materials

- Developing value chains for materials that serve as an alternative to plastics
  - Flax
  - PHA



- Suikeragenda
  - Wad van Waarde
  - **Koopmans**
  - Inventarisation of biobased raw materials
- Wheat residual flows still contains valuable substances (proteins, fibres, minerals)
    - Grinding has positive effect on % soluble protein
    - Promising business case



- Suikeragenda
- Wad van Waarde
- Koopmans
- **Inventarisation of biobased raw materials**

Potentiële volumes van cellulose houdende stromen (straal van 50 - 100 km rond Emmen)			
Type grondstof	NL (kton)	DE (kton)	Prijsindicatie (€/ton)
Bermgras [30% DS]	52	92	-25 - 0
Min. onderhouden (natuur) gras	272	487	0 - 5
Tarwe (stro) [86% DS]	139	60	85 - 140
Gerst (stro) [85% DS]	52	22	85 - 140
Mais (korrel + gewas) [86% DS]	21	40	85 - 140
Hennep [85% DS]	11	4	-
Riet [86% DS]	58	-	-
Oud karton	168	152	60 - 75
<b>Totaal</b>	<b>773</b>	<b>857</b>	



**moore**<sup>®</sup>  
**foam**      **gro**  
..... **wfo**  
                 **am.**

**Recell**<sup>®</sup>

The logo for BioBTX, featuring a stylized green hexagonal graphic on the left and the text "BioBTX" in a green, sans-serif font on the right.

**BioBTX**

Start- & scaleup

~

SME's

~

Int. companies

~

Organizations

~

Knowledge Institutes

~

Government

