Hanzehogeschool Groningen
University of Applied Sciences

Kompetenzzentrum Niedersachsen • Netzwerk Nachwachsende Rohstoffe und Bioökonomie e.V. 3N

Welcome to the workshop!

Connect North Netherland and Northwest Germany in circular transition

Thursday, February 1st, 2024 | Energy Barn, Zernikelaan 17, 9747 AA Groningen

Hanzehogeschool Groningen
University of Applied Sciences

Kompetenzzentrum Niedersachsen • Netzwerk Nachwachsende Rohstoffe und Bioökonomie e.V. 3N

Program

13.00 Inloop, registration

13.20 Welcome
Prof. Dr. André Heeres
Hanze University of Applied Science
Dr. Frank Koester | *3N Kompetenzzentrum e.V.*

13.30 How Circular Transition is moving forward in the North of Nethlands and how to connect with Northwest Germany
Prof. Dr. André Heeres
Hanze University of Applied Science

13.50 3N´s contribution to circular economy
Dr. Frank Koester | *3N Kompetenzzentrum e.V.*

14.10 Realise-Bio
Dr. Katrin Kriebs | *Cluster Industrial Biotechnology*

14.30 Manure and sewage sludge: Nutrient recycling and energy efficiency with improved technology
Dr. Horst Meyrahn | *Agrihumin GmbH*

14.50 Open projects in Interreg Project EMPHATI
Dr. Daan van Oldeniel | *Bio Cooperative*
Dr. Frank Koester | *3N Kompetenzzentrum e.V.*

15.10 The contribution of Ecoras to a bio-based economy in the North of the Netherlands
Gabriela Maldonado | *ECORAS*

15.30 Presentation of the Interreg program Deutschland-Nederland
Piet Boomsma | *Interreg Deutschland-Nederland*

15.50 Open Discussion

16.15 ComeTogether / Lab Tour

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How the circular transition is moving forward in the North of The Netherlands and how to connect Northwest Germany

André Heeres, Johanna Thomann, Hanze University of Applied Sciences

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Hanze University of Applied Sciences

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Practitioner's Section

Johanna Angela Thomann*, André Heeres** and Errit Bekkering***

The Northern Netherlands: Transformation of a gas-producing region into a forerunner in the biobased circular transition

The Northern Netherlands is an unique environment for sustainably-minded (bio)chemical businesses due to the regional availability of renewable feedstock, energy and existing infrastructure as well as the proximity to excellent knowledge centers and upscaling facilities. Within the last decades, several developments unravelled in the biobased circular transition. Exploring how these developments were initiated, the article means to show the opportunities that this region has to offer today. It also makes a strong argument for the economic potential arising from the creative combination of available feedstocks in an innovative ecosystem providing necessary framework conditions and fostering close intersectoral collaboration.

Hanze University of Applied Sciences

- Founded in 1798
- Over 29.000 students
- Over 100 different nationalities
- Applied Research
- 108 bachelor programmes
- 25 master programmes
- Expertise centra (a.o. biobased economy)

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Eems Dollard Region

Northern Netherlands/NW Germany

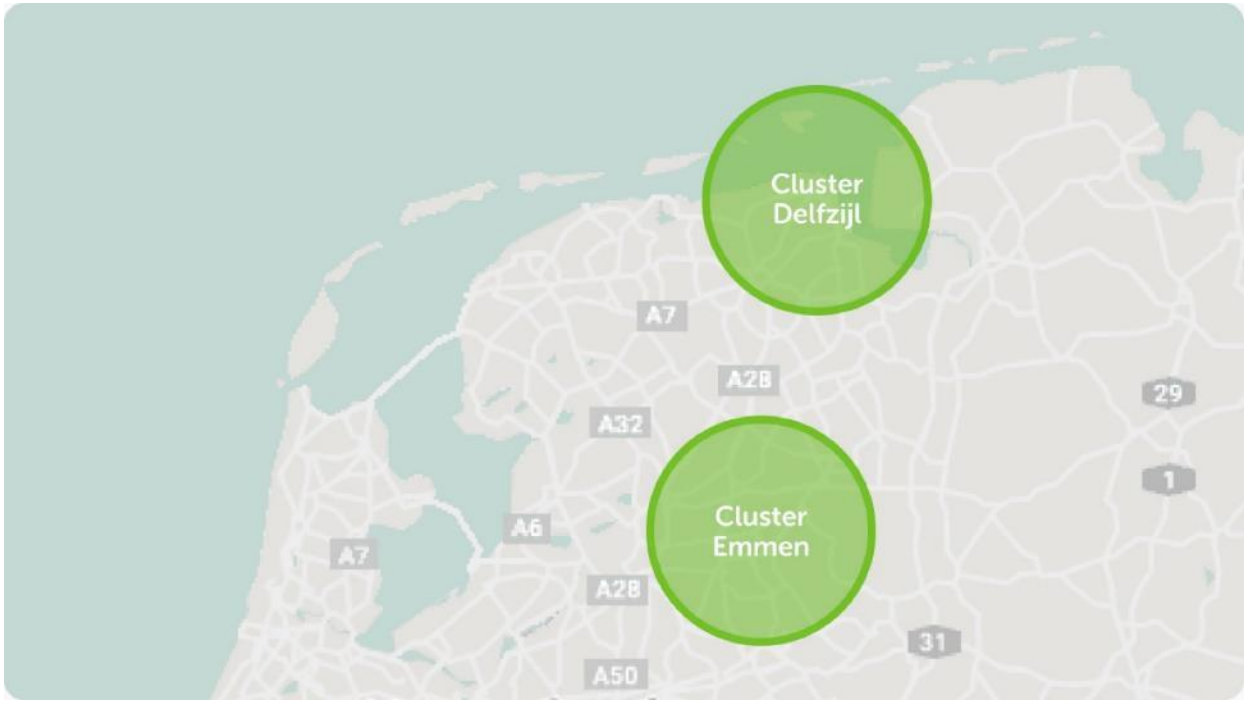
- Agricultural regions
- Relative low population density
- Humble/hard-working people (do-ers)
- Same “dialect”

Groningen: Slochteren and salt mining

- A gas producing region (1959-2023)

- Salt mining (NaCl and $MgCl_2$)

Chemistry clusters in Northern Netherlands



Four ingredients for the circular biobased transition

The world faces fundamental transitions in production of energy and goods, to be realised through the adoption of renewable energy and a biobased circular transition. The Northern Netherlands, spanning the provinces of Friesland, Groningen and Drenthe, provides all the ingredients for this transition.

1. Green energy
2. Renewable Feedstock
3. Infrastructure
4. Knowledge

Four ingredients for the circular biobased transition

1. Green energy

- Optimization of industrial processes and energy efficiency in the chemical clusters
- Electrification (decarbonization)
- Off-shore wind energy
  - targets for 2030 are 21 GW with an additional 20 to 40 GW by 2050
- Northern Netherlands as ‘Hydrogen Valley’,
  - Green hydrogen targets by 2040: 800.000 ton/year
- Carbon capture storage (CCS) in empty gas fields and salt caverns
  - expected levels storage of 10.2 Mt per year in 2030

Four ingredients for the circular biobased transition

2. Renewable/sustainably-sourced feedstock

Agricultural sector: sugar, starch, biomass and residual streams

Energy sector: Green hydrogen and carbon capture, syngas

Waste sector: e.g. cellulose and PHA from wastewater

plastic recycling or upcycling

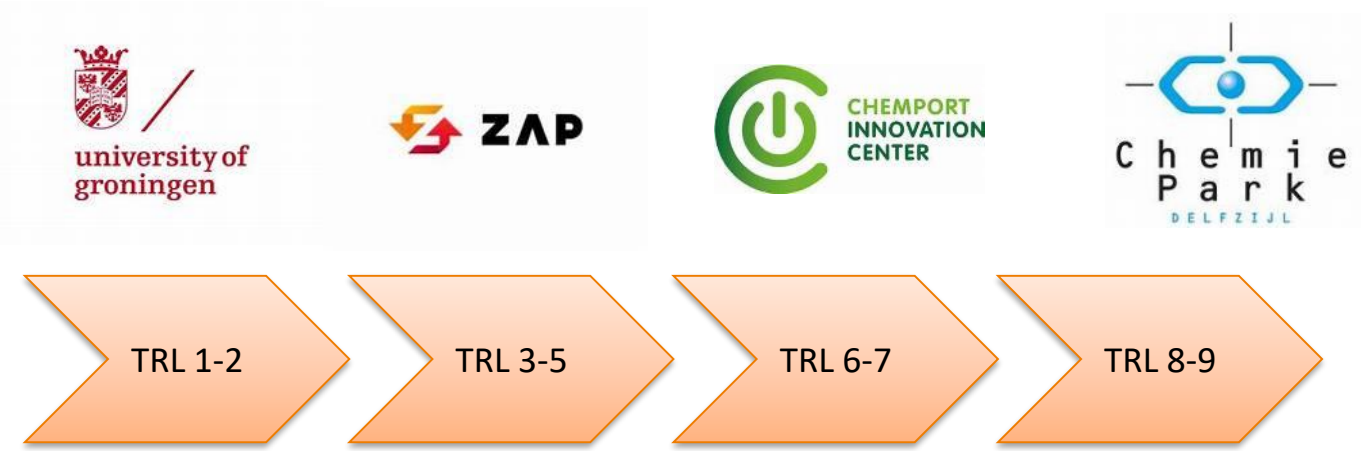
Four ingredients for the circular biobased transition

3. Infrastructure

- Harbours and logistic infrastructure
- Gas infrastructure and pipelines

- Chemical clusters (Delfzijl and Emmen)
- Recycling facilities (collection and sorting)
- Upscaling facilities

Infrastructure: The ”green development train”



Four ingredients for the circular biobased transition

4. Knowledge

- Universities and applied universities

→ Scientific expertise and innovation
→ Human capital

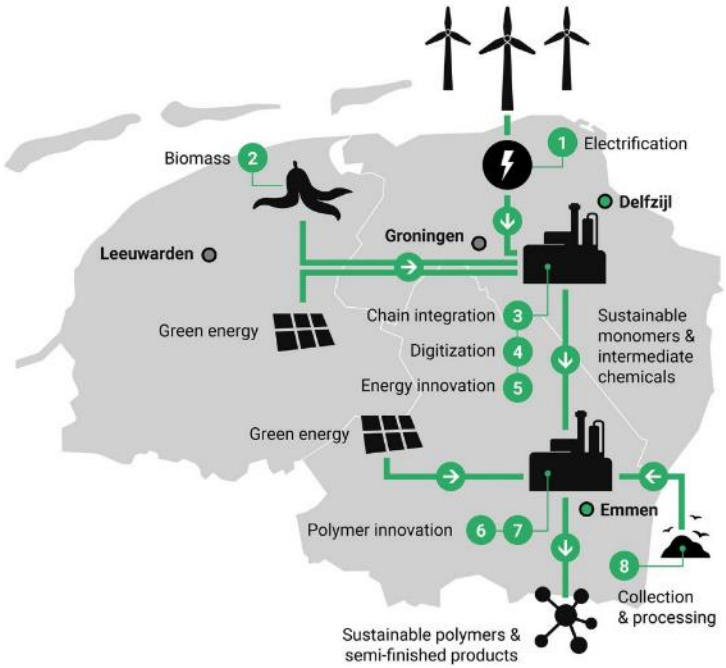
- expertise in mechanical and chemical recycling processes
- expertise in upscaling, also specialised
- collaboration with private and other public partners (Chemport Europe)

Image: https://www.chemport.eu/discover/about-chemport/who-we-are-chemport/

Chances for the region

Available

- Renewable Energy
- Hydrogen
- Harbours
- Biomass (agriculture) (CO_2)
- Biorefinery
- Expertise in chemistry
- Collection and sorting of residual streams
- Recycling
- Chemische clusters + “flagships”
- Human Capital
- Subsidies, Venture Capital
- **Collaboration**
- Space



Coupling of agro, energy and waste sector towards the chemical sector!

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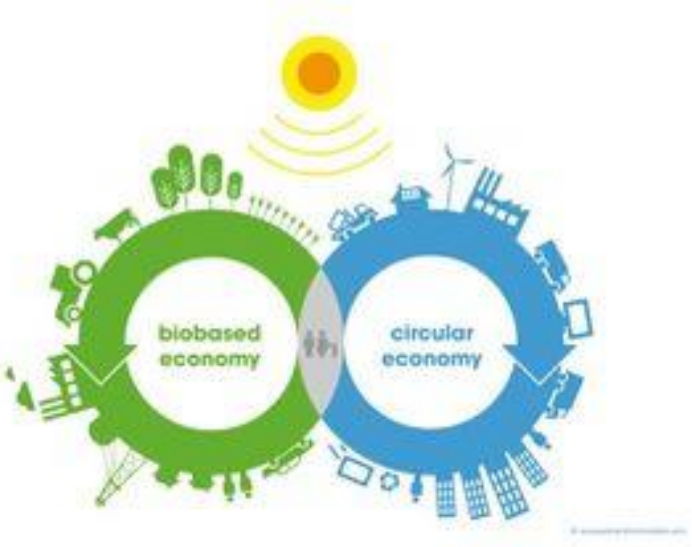
Examples (chemistry/materials)

BioBTX

CURE Polyester Rejuvenation

PAQUES biomaterials

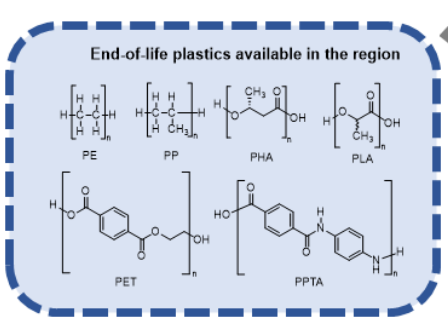


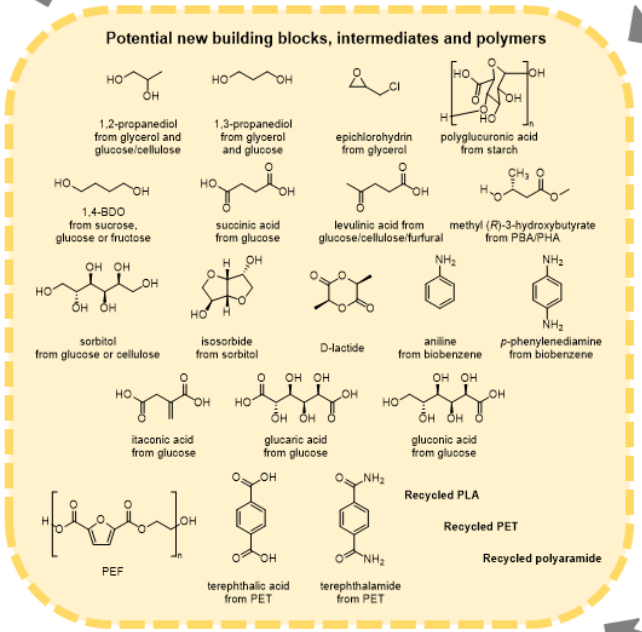
BioBTX

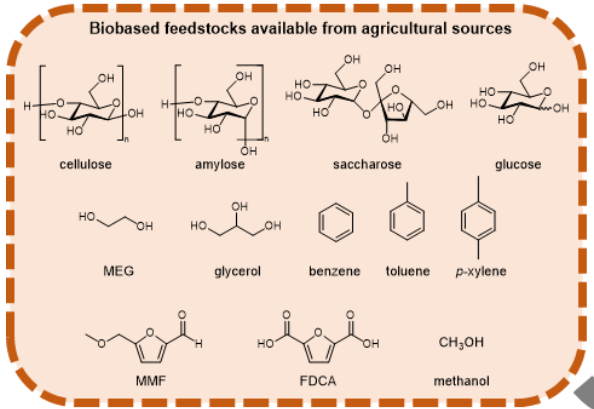
avantium

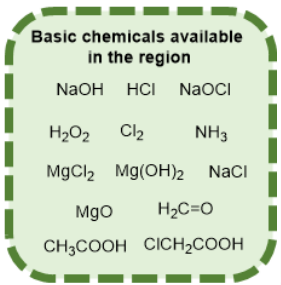
Recell® chem

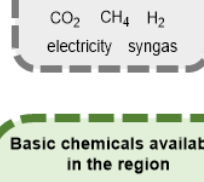
How to move forward?











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Take home message

- The Northern Nertherlands has potential to be a forerunner in the cicruclar/biobased transition. However, further investments and professionalism/optimization are needed to beat competition.

- The Dutch region might be an attractive partner for NW Germany

- ❑ - Exchange of expertise (increase competitive edge of both regions)
- ❑ - Fasten the biobased/circular transition (meeting climate and circular goals)
- ❑ - Coupling of the German agriculture, energy and waste sector to chemistry clusters
- ❑ - Exchange of human capital

Discussion

How do we envision the future development of the circular transition in our regions?

- An example:

"For the circular transition in Northern Netherlands and NW Germany we should use regionally available feedstocks and regionally produced sustainable energy to prepare within our region sustainable high-value compounds/materials".

Discussion (II)

- Did the topics presented fit into the participant´s needs?
- Are funding programmes directed to the problems partners have to solve?
- Do we have to invite other actors to our "circular transition network"?
- We want to invite to a 2nd ("counterpart") meeting in Germany