

Regional Awareness and Needs Analysis Northeast Friesland (Fryslân)





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Preface

COLOR CIRCLE is a Intereg project in which five regions collaborate to unlock the full potential of circular economy by reinforcing the role and capacities of local authorities by strengthened cooperation with local research communities. The project focuses specific on rural and small cities areas. To reach this goal, the project has engaged an in-depth interregional learning and knowledge process, driving the best from existing practices, enhancing regional stakeholders' capacities to transfer and adapt practices from other regions and exploring new approaches. The regions and partners involved are:

- In France, HESAM Université and the Regional Council of Burgundy-Franche-Comté;
- In Spain, the Provincial Council of Grenada;
- In The Netherlands, Van Hall Larenstein Applied Research University, North-East Friesland;
- In Romania, the Regional Development Agency of Centru;
- In Czech Republic, the Central Bohemia Innovation Centre.

Within the project good practices of cooperation between research and local authorities that boost and tool territorial intelligence are shared.

This report is part of the Color Circle project. It is the result of stakeholder meetings, interviews and dialogues with regional stakeholders and an elaborate desk study.



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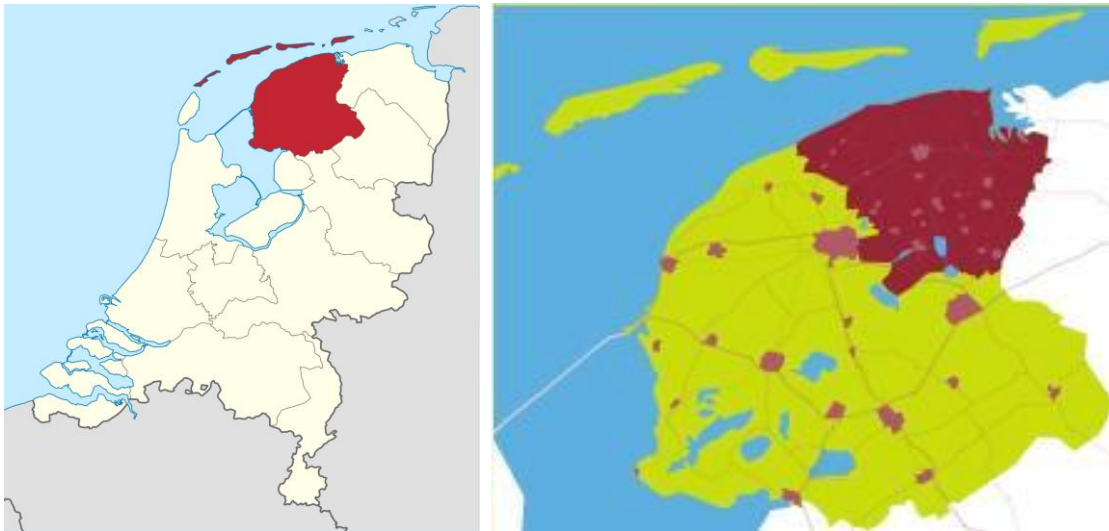
1. Northeast Friesland

1.1 The region

Northeast Friesland is a region in the Dutch province of Friesland. Friesland is one of the 12 provinces of the Netherlands. Most of Friesland is at the mainland but it includes also four inhabited islands. Friesland has its own recognized language and some own distinct cultural activities and sport like fierljeppen and Elfstedentocht (cross-country skating). Furthermore, it is famous for its Frisian horse.

Northeast Friesland is not only the name of that region, but also the Dutch name of the municipality which is officially called Noardeast-Fryslân. The region comprises in total four municipalities: Noardeast-Fryslan, Dantumadeel, Achtkarspellen and Tietjerksteradeel.

Besides provinces and municipalities there is a third regional governmental body in the Netherlands the Dutch waterboards. In the region this is the waterboard 'Wetterskip Fryslan' charged with managing water barriers, waterways, water levels, water quality and sewage treatment in the region.



Netherlands with Friesland (left, red) and Northeast Friesland (right, red)

1.2 The landscape

The current landscape of Northeast Friesland is a combination of economic carriers (especially agriculture and recreation & tourism), a vital and future-proof water system and a number of special natural values, cultural history and the important role that agricultural nature management plays in conservation of the landscape. The area is home to two old cultural landscapes; the Terpen area as part of the Kleistreek (clay area) and the Wouden (woods) area that is part of the National Landscape Northern Frisian Woods. The region lies partly in the Unesco world heritage of the Wadden. The Wadden is the largest unbroken system of intertidal sand and mud flats in the world. Furthermore, there is a low peat area. Each of these landscapes is a unique balance between mentioned carriers, representing the beauty and strength of this area. It is precisely this diversity of landscapes that makes Northeast Friesland so attractive and interesting for a circular bioeconomy.



Landscapes of Northeast Friesland: Wadden (left) and Northern Frisian hedgerows (right)

1.3 Population

With approximately 125 thousand inhabitants, less than 1% of all Dutch live in Northeast Friesland. Northeast Friesland is faced with a decline in population and a change in the composition of the population: there are more elderly people and fewer young people. This will also translate over time into the decline in the number of households. This development has great significance for the social-economic agenda in the region. The Northeast Friesland region is officially labelled as a shrinking area. Shrinking regions receive a special contribution from the municipal fund. Certain facilities can be maintained from this fund.



Regional Frisian cultural activity: 'fierljeppen'

1.4 Employment

The employment structure in Northeast Friesland is characterized by relatively many jobs in industry, construction and agriculture. The business services are here under-represented.

The largest sectors in Northeast Fryslân based on the number of jobs are:

1. Trade and repair
2. Health and welfare care
3. Industry and mineral extraction
4. Construction
5. Business services

70% of the total number of jobs in the region is within these sectors.

The Covid crisis gives new opportunities for the region. Working from home has become the new standard in the Netherlands. So, there is less need to settle in cities / agglomerates. Digitization is essential for the region. The whole region must have optimal digital accessibility. This optimally facilitates residents, entrepreneurs and social partners. So, there is no restriction on working from home and apply new digital techniques.



1.5 SWOT Northeast Friesland

Kreft



Swak



Strong:

- Strategic location in the triangle of Leeuwarden-Drachten-Groningen
- Presence National Landscape, two National Parks and the Wadden Unesco Site
- Flexibility due to small-scale business
- Own cable company
- Collaboration between governments and regional partners

Weak:

- Low socio-economic position, lagging gross domestic product per resident
- Thin, fragile economy
- Innovation activities of companies
- Relatively many people with a low level of education
- Decrease in the number of inhabitants and households

Kânsen



Bedrigings



Opportunity:

- Vacant buildings offer new ones opportunities for business living, relaxing and activity
- Increasing awareness and market for sustainable products and services
- Accessibility by water, rail, road and improve digitally
- Increasing importance of quality of living and location choices
- Increasing need for rest, space and reflection
- Digitization and working from home
- Alternative financing models such as crowd funding

Threat:

- Consequences of shrinkage and aging
- Retail vacancy
- Scaling up
- Shortage of employment
- Shortage of higher educated people
- Limited financial possibilities

2 Circular economy

2.1 Definition

The term “circular economy” is being used more and more frequently within businesses and governments. As it is being seen as a crucial part of the solution to climate change and other global challenges, while offering significant opportunities for new and better growth. It’s a new way to design, make, and use things within planetary boundaries.

There are more than 100 different definitions of a “circular economy”. There are so many different definitions in circulation, because the concept is applied by a very diverse group of researchers and professionals.

Definitions often focus on resource use or on system change. Definitions that focus on resource use often follow the 3R approach:

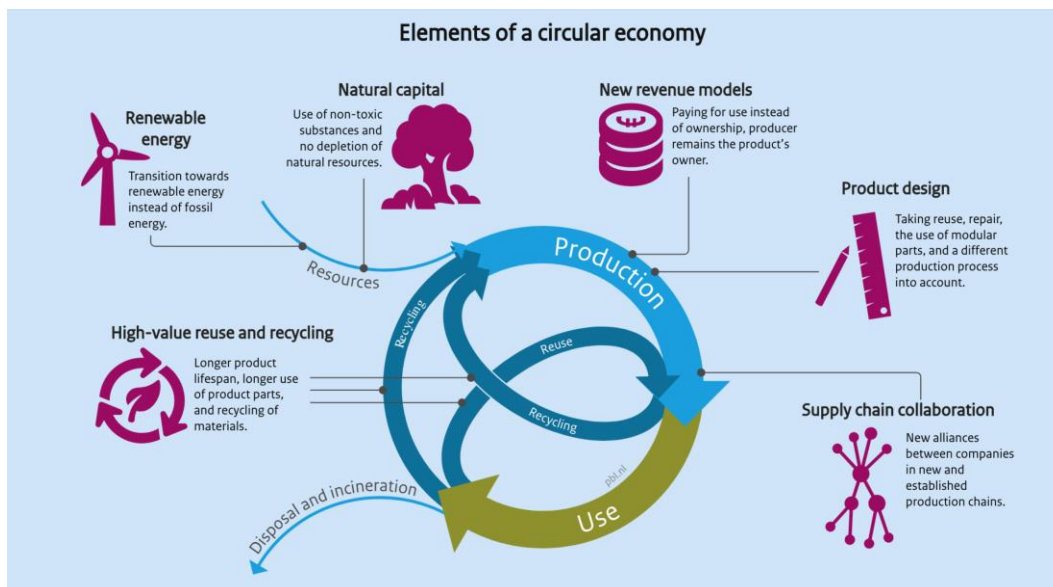
- Reduce (minimum resource use)
- Reuse (maximum reuse of products and parts)
- Recycle (high-quality reuse of raw materials)

Definitions that focus on system change often emphasize three elements:

- Closed cycles;
- Renewable energy;
- Systems thinking.

In addition, some researchers argue that social inclusivity is also a necessary part of the circular economy.

In this publication we take into account all above and other facets of the circular economy in one whole. On the understanding that the focus in this publication is mainly on the circular economic possibilities and opportunities of a specific area, Northeast Friesland, it’s businesses and its products.



Source: PBL 2019

2.2 National policy

The goal of the Dutch national cabinet is that the Netherlands will be fully circular by 2050. The cabinet's ambition is to cooperate with social partners to set a (intermediate) goal in 2030 realizing 50% less use of primary raw materials (mineral, fossil and metals).

Therefore, 3 objectives are formulated to make the Dutch economy circular as quickly as possible:

- 1) Existing production processes make more efficient use of raw materials, so that fewer raw materials are needed.
- 2) When new raw materials are needed, sustainably produced, renewable (inexhaustible) and generally available raw materials are used as much as possible. Such as biomass, which is raw material from plants, trees and food waste. This makes the Netherlands less dependent on fossil sources and it is better for the environment.
- 3) Develop new production methods and circular design new products.

These objectives have been endorsed in the 'Grondstoffenakkoord' (Raw Materials Agreement) by more than 400 companies, NGOs, financial institutions, knowledge institutes, governments and other organizations. On behalf of these partners, transition agendas were drawn up for five priority chains: biomass and food, plastics, manufacturing industry, construction and consumer goods. To implement and "take action" on the inspiring intentions in the transition agenda's an implementation program is drafted.



Dutch national implementation program for CE

2.3 Provincial policy

The province is working on a strong economy that benefits every inhabitant. The transition to a circular economy (CE) is very important in this regard. Since its inception of the Circular Friesland Association (VCF), the subject is well on the agenda in Fryslân and Fryslân is increasingly seen as an exemplary region in the Netherlands and Europe. So won Fryslân won the title "Best Circular Region in the Netherlands" in 2017. The province of Friesland has the ambition for 2025 to be the top three of European regions at the forefront of circular economy. In 2025, Fryslân will purchase at least 50 percent 'circular'

An important vehicle to reach this ambition is the Circular Friesland Association (VCF). An association that is:

- Founded by the Frisian business community;
- Active on 11 themes with many crossovers;
- Triple helix: collaboration between business, education and government;
- Active and open network of circular precursors, including all Frisian governments and large knowledge institutions.

The Province and VCF have jointly developed 'Transition Do Agendas' for 10 themes, work is being done on annual plans, targets for 2025 and the circularity of the Frisian ecosystems. As a start they published in 2017 a raw material flows map to get insight in local CE opportunities.

Circular procurement manifest, in which agreements about circular procurement have been made with all Frisian municipalities, the Wetterskip and Rijkswaterstaat and cooperations takes place within the Frisian procurement academy.



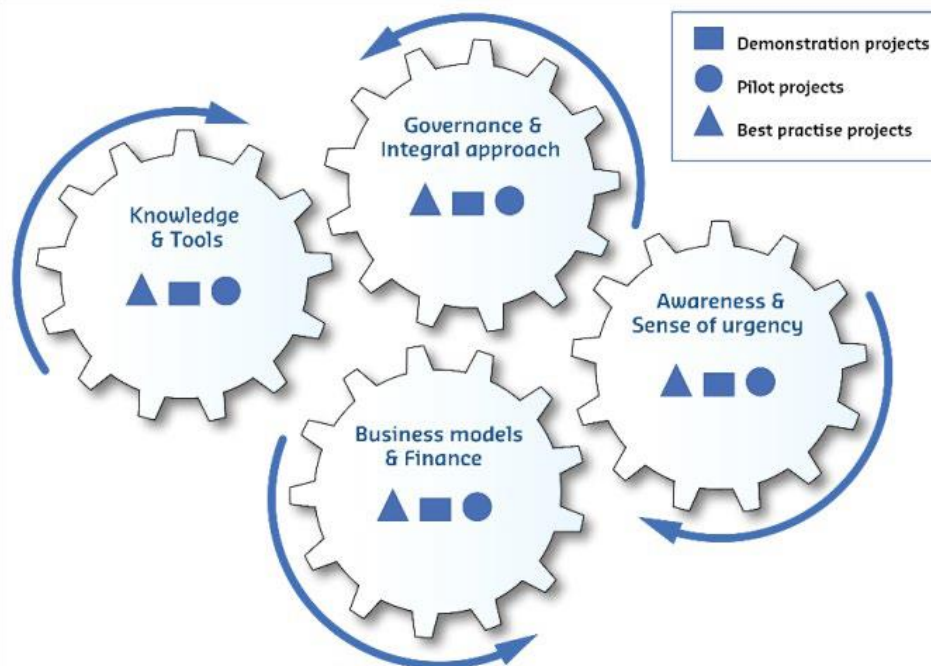
Ambition report of Association Circular Economy Fryslan

2.4 Problem setting

The region is dominantly rural and the economy is focused on agricultural, construction and tourism activities. At present, development in socio-economic perspective is lagging when compared to other regions in the Netherlands. Long term priorities of the regional development focus on renewing and strengthening of the economy, supportive research, education and innovation power (smart industry, smart agriculture, enhanced tourism and recreation) in a landscape of high quality. Climate change is affecting the area and adaptation is focusing on reducing the carbon footprint by enhancing the circular economy by closing cycles, increasing production of renewable energy, transition towards sustainable agriculture while balancing the use of local resources of the landscape such as water and biomass. This has resulted in an action plan that is working along four main lines:

1. Adapt the governance structures and policies to promote an integral approach between sectors and in conjunction with other regional challenges;
2. Involve public and private investment and financing to facilitate transition toward new business models;
3. Build knowledge and expertise on business models in demonstrators on adapting to climate change and the effectivity of adaptation on the economy;
4. Create sense of urgency and awareness in all sectors of society, government levels, and public and private actors.

The regional action plan therefore is multi-facetted and therefore requires an integrated approach to enhance the overall effectivity of plan.



It is important to note that regions have different characteristics, which means that each region needs its own approach and consideration when tackling the regional challenge. The various forces and challenges specific to a region will form the basis for a regional assignment to promote broad prosperity, quality of life and economic strength.

2.5 Regional Policy Northeast Fryslan

2.5.1 ANNO I and II

In 2011, the Social Economic Master Plan ANNO was written. The task arising from this has been translated into the 'Agenda of Netwerk Noordoost (ANNO)'. This is, together with the Regional Agreements for organizational and financial frameworks in 2012 established by the Northeast Frisian municipal councils and the Provincial Council of Fryslân. In 2015, ANNO was succeeded by ANNO II, in which 3 themes and 16 assignments were formulated. The ambition formulated in ANNO II is an attractive living, working and recreational climate. Regional cooperation is the basis for this. The residents will be central to the tasks for the coming period: it is about the future of their region.

ANNO II

Themes: 1. Theme Economy, 2. Theme Grien en blau (green and blue), 3. Theme Housing and Living.

Tasks: 1. Demography, 2. Healthcare, 3. Housing, 4. Mobility center, 5. Business parks, 6. Vital retail structure, 7. Local Living and Working, 8. Sustainability, 9. Accessibility, 10. Digitization, 11. Recreation and Tourism, 12. Knowledge, 13. Strengthening, positioning and promoting NO Fryslân quality, 14. Nature-inclusive agriculture, 15. Future-proof water system, 16. Energy transition



2.5.2 Acceleration agenda NOF

A milestone in the regional cooperation was the signing of the Regional Deal in July 2017. 42 parties from governments, the business community, knowledge and educational institutions and other actors have committed themselves to this deal. The projects from this first phase have now been developed into concrete business cases, so that a concrete implementation program is created: the so-called 'Acceleration Agenda Northeast Fryslân'. The Acceleration Agenda consists of a coherent package of projects that governments, entrepreneurs and education are willing to commit to. 9 business cases, spread over 3 program lines, ensure that the earning capacity of the region is maintained by becoming more innovative together (doing more with fewer people) and by using the labour force in the region in a smart way. This is done by optimally utilizing the potential of the workforce in Northeast Fryslân and the surrounding areas (programme line 1 education and labour market), by focusing on strengthening innovative capacity and entrepreneurship in the region (program line 2 innovation and entrepreneurship) and by setting up a good administrative and organizational infrastructure at regional level for this (program line 3 further development of regional cooperation



2.5.3 Economic and ecological use of agricultural land based on a circular economy

One of the business cases in the Acceleration agenda NOF is ‘Economic and ecological use of agricultural land based on a circular economy’. The aim of this project is to have an economically smart and ecologically responsible agricultural sector in Northeast Fryslân, which can function as a knowledge lab for the rest of the Netherlands (‘from shrinkage to nursery’). The connection between agri and food, to form an agri-food cluster, is seen as important as well as a connection with the food sector outside the region. The basis for the business case is the “Fjildlab Noordoost Fryslân” project. The focus is on product knowledge and quality and knowledge about agricultural land, combined with all conceivable technologies, and steps are being taken towards implementation plans and revenue models. In 2019 the Fjildlab NOF came into use. Within the Fjildlab: the field laboratory for strengthening the circular economy and a sustainable agricultural sector in Northeast Fryslân, sustainable agriculture-related issues such as globalization, climate change, salinisation and the enhancement of nature, landscape and biodiversity are tackled. The Fjildlab collaboration partners are working on innovative solutions and new business models for the agricultural sector.



3 Financing structures

Regional development is a product of realizing region-specific opportunities supported by adequate integrated (inter)national, regional municipal governance. Implementing financing arrangements to help bridging the gap between the present economic activities and future new circular and sustainable business models is the next requirement.

3.1 Regional Deals

One of the most used regional financial development instruments in the Netherlands are the so called 'Regional Deals'. The deal works through combining different policy columns into co-funding schemes. Regional Deals aim to tackle the regional challenges and create a flywheel effect. Furthermore, solving the regional challenges has a cross-regional impact that requires commitment at national level. This involves collaboration between professional ministries, local authorities, the business community, knowledge institutions and social organizations. The government is making national and regional funds available for tackling these regional challenges. This integral and joint approach is the most distinctive character of the Regio Deals compared to regular policy instruments. In the Regio Deal, central government and the region are entering into a sustainable partnership to jointly tackle the challenge facing the region. Regional Deals are also characterized by the strong, continuous commitment of all those involved, creating new forms of cooperation and support to achieve the ambitions and goals set in the regional assignment.

As a basis for this cooperation, the Parties will make mutual agreements about the approach to the regional task, everyone's (financial) contribution to it and joint monitoring of the progress of the deployment. The parties intend to meet on a regular basis to discuss the approach, contributions and progress. The mutual agreements made in the Regional Deal about ambition, goals, intended results and commitment and approach have been reached on the initiative of the Region and in joint consultation between the State and the Region and are not intended to impose unilateral conditions on the part of the State. and attach (financial) consequences to the results.

3.2 Accelerating the regional progress with Regional Deal North-East Friesland

The Acceleration Agenda has three program lines, namely education and the labour market, innovation and entrepreneurship and further development of regional cooperation. The Acceleration Agenda is therefore an offer from the regional parties (education, government, province and entrepreneurs) to the government to accelerate the improvement of the vitality of the economy and the quality-of-life Northeast Fryslân. It thus ties in seamlessly with the ambitions of the Cabinet for regional economic structure reinforcement, the stimulation of innovative manufacturing industry, strengthening technical vocational education, quality of life in the shrinking areas and the transition to a sustainable economy.

Key performance indicators for the Acceleration agenda impact

| Indicator | Level 2015 | Aim 2025 |
|--|---|--|
| Gross Regional Production | Approx. € 2.3 billion in 2015 | € 2.7 billion (+ € 400 million) |
| Amount of jobs | Northeast Fryslân will have approximately 39,000 jobs in 2015, of which approx. 30,000 more than 15 hours (major jobs) and approx. 9,000 less than 15 hours (small jobs). Together these jobs are good for approx.30,600 FTEs (full-time jobs). | 30,600 FTE (stabilization) |
| Workforce working on higher occupational level | Just under 37% of the working population works at occupational level 3 or 4 (the two highest levels). Nationally this is more than 46%. The difference between the region and the Dutch average is 9.5 percentage points. | The difference between Northeast Fryslân and Dutch average has decreased to maximum 5% point. |
| Average disposable income | In Northeast Fryslân it is average disposable income per person € 13,100 for persons with income throughout year that is € 18,200. This is rural € 15,100 and € 20,600 respectively. | The difference in disposable income has decreased to maximum € 1,500 (price level 2015) for both groups of people. |
| School leavers | Between 2011 and 2014, 62% of the students in secondary education Northeast Fryslân (residential municipality) school with a VMBO diploma. The rest left school with a HAVO or VWO diploma. This was nationwide ratio at 55-45. | in Northeast Fryslân relatively the same amount students have a VMBO diploma as nationwide. |
| House market-value (WOZ) | In Northeast Fryslân the average WOZ value is approximately € 163,000 in 2015, this is nationwide € 206,000. In other words, this is approximately 26% higher. | The average WOZ value in The Netherlands is a maximum of 20% higher than in Northeast Fryslân. |

3.3 Co-creating an Implementation program

The development from regional deal to implementation program was done in co-creation: governments, entrepreneurs and education all have the projects updated and made concrete. Via focus groups, amongst others, peer meetings, one-on-one consultation, there is a very rich harvest of experience and ideas introduced into the projects by entrepreneurs, representatives of entrepreneurs, representatives from education, knowledge brokers, business liaison officers and other officials. This has initiated a broad movement in the region of entrepreneurs, education and government who focus on the strongest in concrete projects points of the region. It is precisely in the combination and connection that innovation is often found. Through for example, connecting biobased firms with construction, but also by linking entrepreneurs, not in the same chain, but in the same sector, to be connected with “shared facilities” (see example below). The implementation program is therefore creating projects as crystallization points for pushing the innovation in the region. By responding to the specific character of the region and by motivating entrepreneurs and educational parties, innovation will be the basis of growth.

The projects are listed below.

| | |
|--|--|
| Program line 1 Education and labor market | 1a Mobility Center 1b Agile craftsmanship 1c Building ambition |
| Program line 2 Innovation and entrepreneurship | 2a Campus for building and new materials 2b Shared facilities center 2c Learning entrepreneurship 2d Economic and ecological enhancement of agriculture |
| Program line 3 Further development of regional cooperation and marketing | 3a Organization of implementation of regional deal 3b Regional and destination marketing |

Example Shared Facility ‘Construction Campus’: innovation in co-creation.

A physical test location is being set up in Dokkum in which knowledge is shared and new develop products of SMEs aimed at industrial and circular construction. The demand for the design of this construction campus is ofleading the business world. The knowledge broker construction, for example, has regional business where there is a need. This has led many companies to participate, think along and share knowledge: they immediately see the added vvalue. Open cooperation and thus innovation is facilitated.

3.4 Supporting EU programs

In Europe the need for adaptation to climate change is pressing. This requires integrated systemic adaptation and societal transition in many aspects.

The Commission will continue to actively mainstream climate resilience considerations in all relevant policy fields applicable to both the public and the private sectors. Mainstreaming will extend beyond sectors targeted in the 2013 EU Adaptation Strategy, which included agriculture, infrastructure and insurance. It will support the further development and, most importantly, implementation of adaptation strategies and plans at all levels of governance. In this systemic approach, there are three cross cutting priorities: integrating adaptation into macro-fiscal policy, nature-based solutions for adaptation, and local adaptation action.

Funding from regional and national sources is supplemented by European level funding. The region is at present involved in many different Eu programs:

- Regional Development funds through the [SNN](#) alliance. SNN is the Management Authority for the Operational Programme European Regional Development Fund (OP ERDF) for the Northern Netherlands. The OP ERDF is aligned with the core premise of the regional innovation strategy (RIS3). It stimulates structural cooperation between parties in the Northern Netherlands and promotes a favourable climate for innovation.
- INTERREG: [ColorCircle](#), [SALFAR](#), [REPLACE](#), [Carbon Connects](#), [Care Peat](#), [Canape](#)
- LIFE: [ALL4BIODIVERSITY](#)
- GREEN DEAL: Restoring biodiversity and ecosystem services REST-COAST

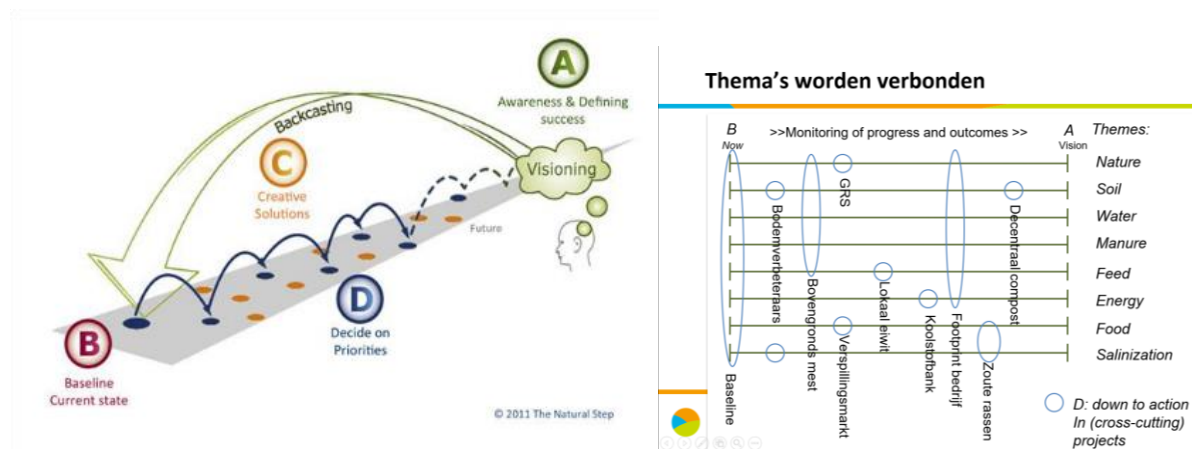
4 Technical implementation of the Fjildlab

The aim of Fjildlab is to help building an economically lean and ecologically responsible as circular as possible agricultural sector in Northeast Fryslân, which can function as a knowledge lab for the rest of the Netherlands ("from shrinking to nursing"). The connection between agri and food to form an agri-food cluster is also important here. The region is characterized by a variety of agriculture and livestock, large and small-scale businesses, organic and traditional agriculture and livestock breeding.

The project comprises the areas of four municipalities. The focus is on improving system understanding, product knowledge and quality and knowledge about agricultural practices, combined with all conceivable technologies, and steps are taken towards implementation plans and revenue models that fit in a biodiverse and attractive landscape. The partnership focuses on the following eight core themes: 1. Nature, biodiversity, landscape and recreational sector: converting into new products and services. 2. Healthy soil: as the basis for the circular economy. 3. Water and agriculture: adding value to blue and green ecosystem services. 4. Renewable energy: produced and sold regionally. 5. Manure: regional processing. 6. Feed: value residual flows. 7. Sweet and Salt: cash-cropping in more saline conditions and producing new services. 8. Nutrition: healthy food, regionally produced.

4.1 Reaching objectives and implementation of concepts

Given this breadth of themes, a need arises to do a regular iterative meta-level analysis to identify underdeveloped subjects that still need more focus to allow required innovation. This is done in the Fjildlab Living Lab facility. At this crucial stage of the process so called theme tables are organized that are convening at regular intervals and that perform the tasks of initiating promising project ideas, defining project teams and support project funding arrangements. Furthermore, the theme tables use the ABCD Roadmap approach to iteratively update the baseline of current status (of knowledge and knowledge gaps), keep track of project outputs and steer toward a shared vision. Each theme is implementing three main aspects of innovation (technology development, business and financing models, facilitating governance and regulations) in their project development.



ABCD Roadmap back casting and strategic planning approach to innovation (left). The theme tables implement the Roadmap and initiate and monitor projects that are sometimes crosscutting multiple themes (right). Themes are consisting of projects that tackle all 4 aspects of innovation (see figure).

4.2 Living Lab design and theme tables

The Fjildlab organization is based on a Living Lab approach, using five design principles.

1) *fostering inclusive 'quadruple helix' participation.*

2) *creating authentic learning environment with focus on a sustainable future.* Living Labs provide opportunities to bring the aspirations of the SDGs on a shared agenda of stakeholders in education, civil society and the private sector in a specific geographical region.

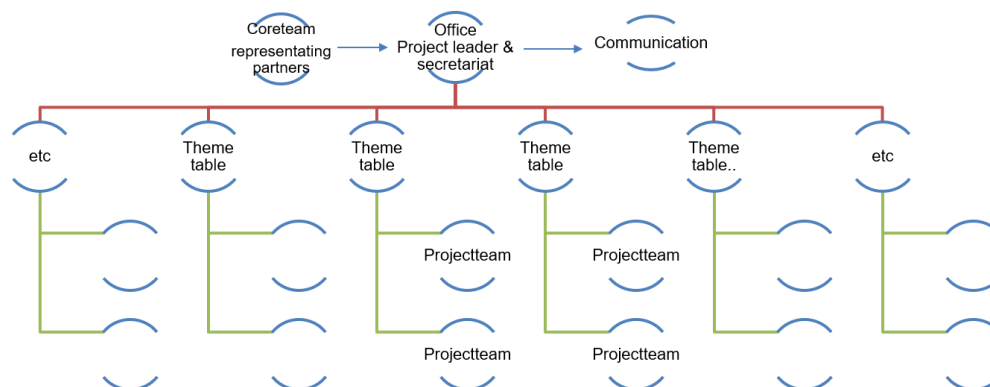
3) *stimulating reflexivity in the learning process.* This implies that monitoring knowledge development performed with involvement of all stakeholders.

4) *facilitating interaction, knowledge sharing and open system management.* Fjildlab acknowledges that repeated relationships and trust, respect and reciprocity are pre-conditions of multi-stakeholder learning processes.

5) *following clear and shared working concepts for achieving goals. Structured Roadmap and innovation concepts, see above.*

The below figure shows the organizational structure of the Fjildlab Living Lab.

Organisatie



Theme tables meet bi-monthly:

- projectideas => projectteam => projectproposal => monitoring => evaluation
- chaired by expert on theme
- +/- 15 stakeholders per theme table, always open for new members



4.3 Main stakeholders and beneficiaries

Main stakeholders are the four partners of the Fjildlab consisting of two nature-inclusive farmers collectives (about 1000 farms), the collective of SME's (ONOF, more than 1000 businesses) and U. of App. Sciences Van Hall Larenstein.

In addition, the municipalities, provincial and national authorities are stakeholders in the role of funding agencies. Beneficiaries are mainly groupings of local agri-food business that formed project-teams to work on innovations in the projects' themes.

Fjildlab Living Lab as 'Mienskip' (Frisian word for 'Community') of many partners for learning, research and innovation.



4.4 Raising awareness and dissemination

Many activities are implemented to help raise awareness and disseminate the knowledge

Fjildlab partners

The partners represent large groups of stakeholders. There is already a system in place with each partner that is used to share news and discuss matters related to the partner organization. These existing channels are used to forward news from Fjildlab to the stakeholders. The same channels are used to broadcast invitations to yearly plenary meetings where status and progress are discussed. In 2019 this has been implemented as a two-day event, including parallel and plenary sessions and networking lunch. In 2020 this was replaced by an online meeting.

“On Tuesday 19 January there was an online information meeting for those involved and interested parties (recorded at the bottom of the text). Nearly 100 people took part in this. After an introduction by Albert van der Ploeg, chairman of the Fjildlab foundation, Durk Durksz, program manager briefly explained the current status of the program. Now that the financing from the Region Deal has been completed, the knowledge circles can continue with the elaboration of the projects. The meetings of the knowledge theme tables are scheduled for February, which can be found in the agenda. The knowledge circles Manure and Feed have been merged. Herman van Vliet spoke about his experience within the project Frisian potato as an icon and Emiel Elferink, professor at the Van Hall Larenstein University of Applied Sciences, showed what the results of the knowledge theme tables have been so far.”

Theme tables

Regular meetings with theme tables and their communities are organized multiple times per year. In this tables project ideas, initiatives and funded projects progress and outcomes are discussed. In this phase the focus is on supporting project initiation. Each theme table shares its findings and relates to the ABCD Roadmap for selecting and evaluating projects. Theme tables are open for interested individuals, businesses to join and share and co-develop idea and initiatives.

Demonstrations and meetings in the field

The Fjildlab initiated four demonstration sites. These sites act as meeting point of various projects and facilitate students and researchers to visit and work. As the sites are situated at active farms sites the interactions between practitioners, researchers and students is stimulated.

Regional events or programmes with Fjildlab contributions

The region hosts events that are of relevance to Fjildlab. Fjildlab is represented there through the partners or through representatives of the theme tables. This connects other networks to the Fjildlab. A good example is the connection to the Association Circular Friesland (a network of hundreds of SME and other organizations related to promoting and implementing circular economy).



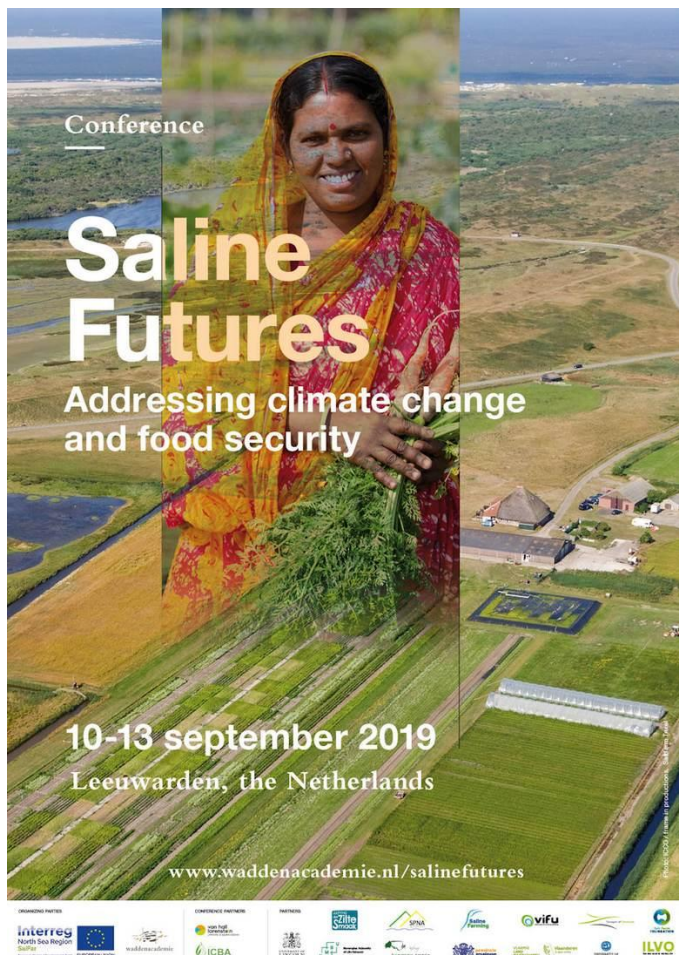
OUR AMBITION:
**WE STRIVE TO BE
THE MOST CIRCULAIR
EU REGION IN 2025**



National workshops, webinars and international conferences

Fjildlab is in June 2021 part of a national conference discussing the national knowledge program on climate adaptation and will be part of the workshop on the setup and functioning of Living Labs “working together on innovative solutions in a lifelike setting”

Fjildlab is actively participating in many workshops, webinars and in some international conferences. For example, we used this international platform for discussing the salinization issues with experts from other deltas in the world.



Students, lectures, courses

From several universities students are involved in fieldwork, classrooms, guest-lectures and so forth. Teachers and lecturers will increasingly utilize the case materials through the link of the universities with the theme tables and the projects. The regional government is very supportive in creating regional hubs that combine research, practice with knowledge dissemination to the younger generations to speed up building of capabilities to support the adaptation to climate change.

4.5 Overview and some examples of Fjildlab projects

Table. Overview of projects and project initiatives in core themes

| THEME | Nr | Idea, Initiative, submitted or funded project | Project Name (in Dutch) |
|--|---------------------|---|--|
| 1. Nature, biodiversity, landscape and recreational sector: converting into new products and services. | Natuur en landschap | | |
| | NL1 | Submitted, not funded | Actieplan Biodiversiteit |
| | NL2 | Initiative | Bramenflora aanschouwelijk maken |
| | NL3 | Idea | Stichting Bloeiend Boerenland |
| | NL4 | Idea | Landschap laten zien |
| | NL5 | Idea | Bloeiende bomen voor landschapsbeheer |
| | NL6 | Idea | De Boomwal als apotheek |
| | NL7 | Idea | Botanische Akkers op Friese Klei |
| 2. Healthy soil: as the basis for the circular economy. | Bodem | | |
| | B1 | Funded project | Duurzaam bodembeheer: aanwenden strorijke stalmest |
| | B2 | Initiative | Integrale verduurzaming pootgoedteelt |
| | B3 | Initiative | Humus Academy |
| | B4 | Submitted | Bokashi Groenstations |
| | B5 | Initiative | Walpyk Zonneweide kippen |
| | B6 | Idea | Regenwulpen en bodembiodiversiteit |
| | B7 | Idea | Betere stikstofbenutting en bodemkwaliteit idoor kringloopboeren |
| | B8 | Submitted | Leernetwerk Bodem |
| 3. Water and agriculture : adding value to blue and green ecosystem services. | Waterbeheer | | |
| | W1 | Idea | Erfafspoeling + moerasfilterdak |
| | W2 | Idea | Duurzaam bodembeheer als sleutel voor klimaatadaptatie en schoon water. |
| | W3 | Idea | Waarde van regenererende water(eco)systeemdiensten. |
| | W4 | Idea | Flexibel peilbeheer en zelfsturing door grondeigenaren |
| | W5 | Funded elsewhere | Boeren meten water |
| | W6 | Funded elsewhere | AgriFuture |
| | W7 | Idea | Biologische verwijderen van gewasbeschermingsmiddelen uit (afval) water zonder reststomen; een nieuwe aanpak |
| | W8 | Idea | Branding gebied vanuit landbouw (product en productie gericht op creeren meerwaarde product) |
| W9 | Idea | Aquateelt experiment aan de kleikust | |

| | | | |
|--|--------------|---|--|
| | W10 | Idea | Strokenteelt in de akkerbouw |
| | W11 | Idea | Holwerterfeart ecologische en landbouwverwerking |
| 4. Renewable energy: produced and sold regionally. | Energie | | |
| | E1 | Idea | CO2 opslag (bodem en bomen) |
| | E2 | Idea | Koolzaad in Gras |
| | E3 | Idea | Duorsom Ien Drachtstercompagnie MTS |
| | E4 | Submitted | Walddyk zonneweide |
| 5. Manure: regional processing. 6. Feed: value residual flows. | Mest en Voer | | |
| | MV1 | Initiative | Boer zoekt Boer |
| | MV2 | Initiative | Scheiden urine en faeces |
| | MV3 | Initiative | Relatie kruiden en melksamenstelling: potentiële meerwaarde voor de melk |
| | MV4 | Initiative | Kruiden tussen de coulissen: meerwaarde voor bedrijf, economie en biodiversiteit |
| | MV5 | Idea | Lokaal eiwitgewas op mest als natuurlijk alternatief, winterveldbonen? |
| | MV6 | Idea | T-shirts uit mest |
| | MV7 | Idea | Minder Kunstmest (VEL) |
| | MV8 | Funding requested elsewhere | Kringloopboeren, mestverbetering en stikstofreductie |
| | MV9 | Idea | Aeromix systeem |
| MV10 | Idea | Toepassing van middel om mest te verbeteren | |
| 7. Sweet and Salt: cash-cropping in more saline conditions and producing new services. | Verzilting | | |
| | Z1 | Initiative | Zout baggerslib op land proef |
| | Z2 | - | Vrij nummer |
| | Z3 | Funded elsewhere | Salt Campus |
| | Z4 | Idea | Gebiedsagenda Holwerd aan Zee: demo zilt teelten |
| | Z5 | Idea | Kantelpunten verzilting sloot en perceel in beeld |
| | Z6 | Idea | Waarde Inlaatwater |
| | Z7 | Funded elsewhere | Nieuwe verdienmodellen Waddenregio |
| | Z8 | Initiative | De Slykwurker |
| | Z9 | Initiative | Karakteristieken van Zilte bodems |
| | Z10 | Funded | Zoet op Zout |
| | Z11 | Idea | Experiment zilte landbouw buitendijks 10-20 ha |
| | Z12 | Idea | Opslag zoet water |
| | | | |
| 8. Nutrition: healthy | Voedsel | | |
| | V1 | Funded project | Fjildlab Verspillingsmarkt |
| | V2 | Submitted | Fjildlokaal |

| | | | | |
|---------------------------------|--|--------------------------------|--|---------------|
| food, regionally produced | V3 | Submitted, not funded | Regionale producten “voor-goed-eten!” Coöperatief Centrum voor Regionaal Voedsel en NO Fryslân | |
| | V4 | Funded project | Friese aardappel als icoon | |
| | V5 | Funded | Brood van Pyt | |
| | V6 | Funded | Gerst en hop voor bier | |
| | V7 | Idea | Waddenchips CHIPS | |
| | V8 | Submitted, not funded | Zilte aardappelen vermarkten | |
| | V9 | Submitted | Fries levend erfgoed: Friese Rassen en Gewassen | |
| | V10 | Idea | Fries levend erfgoed: Aanschouwelijk maken Bramenflora Fryslân | |
| | V11 | Idea | Van Fries erfgoed tot streekproduct | |
| | V12 | Idea | Integrale verduurzaming van de pootgoedteelt in NO-Fryslân (en NW- Groningen) | |
| | V13 | Idea | Kruiden en Melksamenstelling | |
| | V14 | Funded | De Wichterij | |
| | Other more integral or non-theme fitting subjects | Overige | | |
| | | O2 | Funding requested elsewhere | Vitale Akkers |
| O3 | | Idea | Het nieuwe landschap van NOFryslân | |
| O4 | | Idea | Productie van natuurlijke Indigo uit wede | |
| O5 | | Funding requested elsewhere | Systeemveranderingen in de Landbouw | |
| O6 | | Idea | Cow-comfort project Hegebeintum | |
| O7 | | Idea | Projectplan nieuw zuiveringsconcept GBM | |
| O8 | | Idea | Projectplan Voorkomen uitval mensen met autisme spectrum stoornis | |
| O9 | | Idea | Productie Natuurlijke Indigo uit Wede | |
| O10 | | Idea | Nieuwe verdienmodellen | |
| O11 | | Submitted | Exotenwacht | |

4.5.1 Highlighted Projects

4.5.1.1 Ecolana: straw rich manure

Ecolana is a partnership of two arable farmers, a dairy farmer and a sheep farmer, who have been looking since 2001 for operational management that meets social requirements and at the same time leads to operational management that offers prospects for entrepreneurs and their successors. They have therefore been working on a closed cycle across the companies since their foundation. To further improve this cycle, they want to gain insight into the effects of using straw-rich farmyard manure. The straw (from malting barley) is produced by the arable farmers and delivered to the dairy farmer who has adapted his barn for this. The straw-rich farmyard manure is delivered to the arable farmers who want to use this manure. However, by law farmers are obliged to incorporate manure when applied. However, this gives potential risks for plant disease in the field of the seed potato farmers. Therefore, Ecolana has been granted an exemption for not incorporating straw-rich farmyard manure. The exemption is part of a four-year trial that examines the influence of not incorporating straw-rich farmyard manure on soil and surface water quality, production, product quality and biodiversity above and below ground.



The farmers of Ecolana

4.5.1.2 Bokashi

In recent years, interest in the bokashi method as a soil improver has increased. Bokashi is an organic fertilizer that is created after fermentation of organic residual flows. Bokashi is the Japanese word for "well fermented organic material". The preparation of bokashi is comparable to the 'silage' of grass or maize in livestock farming. Bokashi is used to restore soil fertility.

Partly because bokashi can be made from organic materials such as (natural) grass, roadside and ditch cuttings, bokashi offers water boards, municipalities and site management organizations (TBOs) good opportunities for the local processing of their residual flows. In this way, (nutrient) cycles are closed locally, reducing the environmental impact of greenery management. The production of bokashi also offers economic opportunities because costs for transporting organic material and so-called gate rates can be reduced.

This project is intended to provide insight into the potential of bokashi as a sustainable local processing method for green flows that can be used on agricultural plots. The aim of the project is to obtain a substantiated overview of the operation, possibilities and opportunities.

The parties working together in this project are the Municipality of Dantumadiel, Wetterskip Fryslân, Mulder Agro, Nordwin College and Van Hall Larenstein University of Applied Sciences, the Noardlike Fryske Wâlden Foundation and farmers from the area. The project is financed by the Knowledge Center for Nature and Living Environment, Wetterskip Fryslân and the entrepreneurial fund Dantumadeel. The project is managed by the Kenniswerkplaats Noordoost Fryslân.



Pictures of the Bokashi project

4.5.1.3 'Zoet op Zout' (fresh on salt)

The northern clay area requires measures to prevent or limit salinization. With the Delta Plan for Agricultural Water Management as a catalyst, the organizations LTO Noord, SPNA, Agrarische Jeugd Fryslân and Groningen, The Potato Valley, Acacia Water and farmers around the Lauwersmeer area came together to come up with an action plan. This plan, called 'Zoet op Zout', aims to deploy, test and demonstrate measures on a farm scale. The results form a future approach for the entire region. In doing so, it wants to offer a perspective to agriculture that has to produce more and more in a saline environment. This is done by implementing various approaches at farm scale around Lauwersmeer.

The project needs support from the regional governments (the provinces of Fryslân and Groningen, together with the waterboards Noorderzijlvest and Wetterkip Fryslân water boards, to:

- Stimulate increasing knowledge and opportunities to combat salinization.
- Remove legal barriers to construction of measures such as anti-salinisation drainage and underground storage.
- Provide financial support for the continued development and roll-out of these new techniques, so that they can be taken up by the market.
- Provide financial support for the activities on the SPNA experimental farm aimed at increasing knowledge and their use in the development of salt-tolerant varieties and the preservation of the structure of the clay soil.



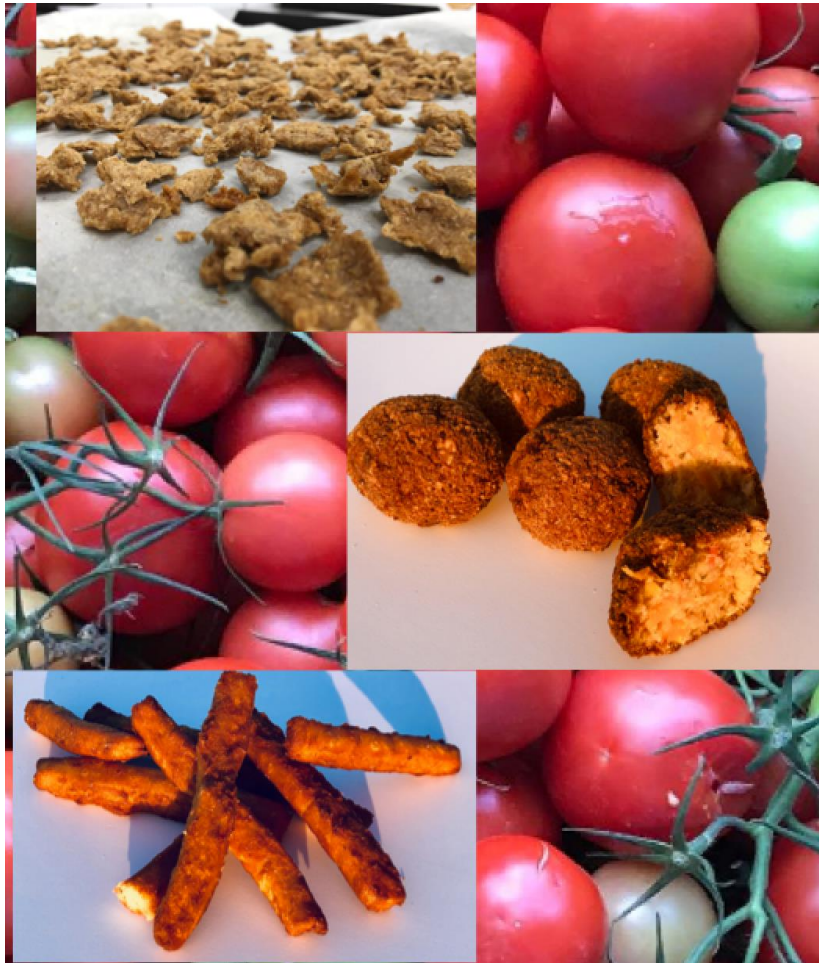
**PROGRAMMA
ZOET OP ZOUT
LAUWERSMEERGEBIED**

**LANDBOUW, KENNISINSTELLINGEN EN OVERHEDEN
WILLEN SAMEN WERKEN AAN BEPERKING VERZILTING**

Project poster 'Zoet op Zout', text on poster state: 'Agriculture, knowledge institutes and governments want to work together on limiting salinisation'.

4.5.1.4 'Verspillingsmarkt' (Food waste market)

We waste a lot of food. Many different products that do not meet the needs of the market for 'cosmetic' reasons are thrown away. These products come from agriculture, arable farming, (greenhouse) horticulture and retail, and are not used for direct consumption due to a deviating shape, size, cracks or spots. With the VerspillingsMarkt project, Fjild, Greydanus Groothandel and Kaaij Kwekerij want to actively reduce food waste and jointly strive for a closed food cycle. The ambition is to develop into the knowledge center of Northeast Fryslân in the field of food waste and reducing waste throughout the food chain, with a focus on potato, vegetable and fruit products. Project duration November 2020 to September 2023.



Some of the 28 new food products produced from food waste / residues in the project Verspillingsmarkt

4.5.1.5 *Better Wetter: brusplak*

Better Wetter, that is Frisian for 'better water'. A better, healthier and more sustainable water system in the peat meadow area in the Northeast Fryslân region. That's what Better Wetter wants.

But it's more. Our climate is changing. How should we deal with that? How do we adapt our way of life to this? In a fancy word, this is called 'climate adaptation'.

How can we start living in a more sustainable and environmentally friendly way? Better Wetter is also working on this. We call this a 'circular economy'. An economy in which as many products and raw materials as possible are reused and where as little as possible is thrown away.

The possibilities in areas with flexible water management can be increased when there are opportunities for local entrepreneurs. The development of regional revenue models is central to Better Wetter. This is happening, for example, with the production of cattails and peat moss from polder areas in the region. By involving local entrepreneurs in this approach from the beginning of the project, the development of new products and services is widely supported.

Better Wetter is a widely supported program in which various parties work together.

Participants: the municipality of Dantumadiel, Province of Fryslân, Wetterskip Fryslân, ecological research and consultancy firm Altenburg & Wymenga, Nordwin College and Van Hall Larenstein, agricultural nature association Noardlike Fryske Wâlden, It Fryske Gea and the Frisian Environmental Federation. They work together with local entrepreneurs in the region and with the Kenniswerkplaats Noordoost Friesland.



'Cigar plant' from the Better Wetter project insulates station building of Feanwâlden.

5 Visioning and Needs

Northeast Friesland is an area that does not lend itself to scaling up or intensification due to the culture, landscape and history of the area and its inhabitants. This makes it necessary to look more broadly at how to earn money in agriculture. New revenue models must therefore come from activities that match the unique character and economic vitality of the area.

An area-oriented circular economy has this potential. There are many opportunities in Northeast Friesland, but a transition to a circular economy and its potential added value for the region, companies and citizens can only be achieved through integrated cooperation between companies, farmers and (local) stakeholders. After all, companies/SMEs in the biobased economy must be distinctive in quality and functionality in order to compete with conventional (fossil-based) products. Good supply and quality of local raw materials is essential for this. Farmers make choices every day that determine the quality, availability and impact of these raw materials. Involvement of stakeholders (local citizens, consumers, governments,...), as area users, buyers, legislators, etc. is indispensable when starting up and realizing a circular economy. More specifically; cooperation is indispensable when starting up and realizing an area-oriented circular economy.

A transition to a circular economy requires a drastic change in how we think and act regarding the use of raw materials, the design of products and the way we consume. In this transition to a circular economy, there is a lot of attention for new companies and industry and much less for agriculture. However, agriculture is the main producer of the raw materials for the biological materials of the circular economy, the so-called biobased economy.

Therefore, the agricultural business is central, with an eye and attention to the quality of life, the landscape and the rural economy. In short; an attractive area where it is good to live, work and recreate. And Northeast Fryslan is not starting from scratch. Many farmers are already working on circular agriculture, improving the soil quality of their plots. Many farmers are already taking steps to increasingly integrate natural processes into their business operations. Northeast Fryslan want to further stimulate and develop this in the coming years, with support from the government. Not by imposing new laws and regulations, but by facilitating and offering scope for bottom-up initiatives. Initiatives like Fjildlab, the Regional Deal Nature Inclusive Agriculture, the Construction Campus (BOWIN) etc. and the municipalities, the agricultural collectives, the Frisian association of circular economy, province, waterboards, ONOF are essential.

Impression of the vision drawn up by the province of Fryslan and regional stakeholders for the Region of Northeast Fryslan:

“A couple enjoys the wide landscape while cycling. They come here every year for a few days to relax. Flowers and herbs brighten up the roadside verges. Cows graze contentedly in the herb-rich grasslands. In front of them is a small village with the church in the middle. Built on an ancient mound. It breathes the history of the landscape. The surrounding fields with lush green edges complete the picture. Nature can be heard and seen with a wide variety of birds, butterflies, bees and insects. The seed potatoes, beets and grains are in good condition in the fields. The potatoes are in bloom. Full fields, interspersed with strip cultivation. They notice the growth of the soy acreage. Imports from Brazil have been restricted. Cultivation is profitable for both meat substitutes and animal feed. The couple spend the night on a farm where they are given a tour of the company the next day.”

5.1 ANNO III

The municipalities in the region have recently announced that they will work together with Wetterskip and Province of Fryslân with a new cooperation agenda, ANNO III, on the ambition to be a top region in the Northern Netherlands by 2040 in the field of living, working and recreation. The drafting of this agenda is still ongoing at the time of writing this report. The experiences and lessons of the partner regions in Color Circle are also discussed and taken into consideration.

Circular economy is mainly embedded in the Grienblau (greenblue) part of the ANNO III. Recently a first exploration with stakeholders was organised. This exploration came up with the following substantive focus / agenda:

- Period 2021 – 2023 actively participate inter-administratively and link up with current initiatives, and where this can be done more actively/more integrated. By exploring how one's own goals can be embedded and/or a flywheel from these initiatives. In short, from the O – of government, actively participate as a participant to make policy instruments and legislation and regulations more appropriate and to implement social goals. These initiatives work on the themes: climate adaptation, circular/ biobased economy, transition of agriculture and biodiversity. For this step, governments must concretize and visualize goals.
- Period 2021 – 2023 working on greater cohesion in the region and organizing additional European cooperation and funding for this in collaboration with knowledge institutes and universities.
- Working towards an area contract with landowners from 2024 onward. Period 2021 – 2023 used for:
 - Developing the goals (which must be embedded regionally) stacking goals/integral approach.
 - Developing the remuneration structure (public and private) for the landowners/users.
- Period 2024 conclusion of area contract public – private

The following approach is suggested:

- Solutions in rural areas require integrality. Therefore, do not treat the topics of climate adaptation, circular economy, new agriculture and biodiversity (and energy) separately, but work towards an integrated Grienblau advice.
- Statutory statements come from Europe and the government. The government is actively looking for cooperation with regions. Expand the inter-administrative collaboration with LNV and I&M, so that they can be part of the solution. Do this in a two-stage rocket: first determine the agenda regionally, then seek connections at other levels.
- Transitions can only take place if all stakeholders participate: government, education and entrepreneurs. Here lies a rich history within ANNO I and II. Build on that and focus on a public-private agenda.
- The strategic collaboration between knowledge institutes/universities, the Municipality of Leeuwarden and the Province has led to strategic consultations with enthusiasm of all parties and which would now fit well within the requested exploration of ANNO III. Feed the report of this meeting back to the participants, inform them about the exploration of ANNO III and invite them to attend the agenda-setting meeting. This is in line with the agreement made to organize a follow-up meeting based on a single target agenda.
- Invite additional official representatives of the municipalities, the Wetterskip and the national government here.