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Interfaces

MAP Position Paper



LAND USE &
CLIMATE CHANGE



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Summary and key messages

This Multi-Actor Platform (MAP) position paper reflects the results of three regional MAP dialogues for North Limburg, the Achterhoek, and of interviews and literature review for the region of Schouwen-Duiveland. Within the SHERPA topic of 'Land use in the context of Climate Change', the MAP climate proof ruralities-P10 has focussed on the topic of climate adaptation within an area-oriented approach. This topic and the role of rural areas is less covered by the Long-term Vision for Rural areas of the European Commission (EC) and the P10 wants to highlight the contribution rural areas make to the climate challenges. Municipalities in the P10 are all in different stages of developing their climate adaptation plans by translating, adapting, and operationalising the general lines of the national and provincial climate adaptation strategies. Within the challenge to make water and soil leading in spatial planning, Achterhoek actors (from research, policy, and society) have been developing and implementing the Achterhoek approach to drought. In North Limburg, policy, research and consultancy companies have been developing and exploring an area-based approach to tackle the various societal challenges and issues. In Schouwen-Duiveland, the provincial Climate Adaptation Strategy is now being translated into a municipal strategy. The European and national policy importantly influence the forcefield in which the area-based approach takes shape. Below the MAPs policy and research recommendations on how the European Commission can support areas to be able to undertake choices that fit with societal challenges at the same time as the ambitions and identity of the area.

Recommendations for future policy development

- European and national policy should provide clear long-term goals and set boundaries.
- The European Commission needs to give rural areas the room and confidence to develop their area-based approach to make the puzzle of societal challenges within their rural reality.
- Stimulate the exchange of knowledge and experience on how different areas link sectoral challenges, long-term and short-term, European and local level, public and private interests.
- European and national governments have a role to invite and encourage those developments which are desirable but do not happen by themselves such as cross-border cooperation and international exchange, capacity building and collaborative search.
- Support connection, cooperation and mutual understanding between the different sectors and levels of management and governance.
- Build on and strengthen the regional cohesion and identity.
- Create secure mechanisms for flexibility in timing, funding and even delivery on goals.
- In summary, the European and national policy has a role to influence the forcefield in which the area-based approach takes shape.

Recommendations for knowledge development and future research

- Support the co-creation of knowledge, information, and skills required in the different phases of the area-based process for climate adaptation.
- Support and stimulate educational institutions to take their role in creating a sustainable future for rural areas.
- Contribute to the development of mechanisms and instruments to balance sharing costs and benefits between public and private actors.
- Support the development of practical and feasible revenue and business models that support the vision.
- Develop instruments and capacities to deal with sensitive issues in the area-based approach.

1. Introduction

Within the SHERPA topic of 'Land use in the context of Climate Change', the MAP P10 climate proof ruralities has decided to focus on the topic of climate adaptation. The P10, a partnership of 30 large rural municipalities, hosts and coordinates the MAP Climate proof ruralities together with Wageningen Research. P10 municipalities are characterised by a large area of land and the absence of an urban core. Due to the similar characteristics, the municipalities often deal with similar challenges and opportunities in ensuring that the quality of life and vitality are preserved.

The wide topic of Land-use in the context of Climate change was narrowed in order to allow for meaningful interaction. After a joint analysis of the developments in the P10 area and the EC Long-term Vision for Rural Areas (LTVRA), the topic of climate adaptation in rural areas was selected. The P10 sees important contribution for rural areas to climate adaptation and observed this was not sufficiently highlighted in the LTVRA. Also, the P10 felt the need and saw opportunities to use the MAP dialogue to draw extra attention to this topic at national and European level. Within this topic, the members of the P10 expressed a special interest to discuss climate adaptation in the context of an integral area-based approach. With the completion of the inter-administrative programme vital rural areas (IBP-Vitaal platteland) in 2021 and the development of the National Rural Area Programme (NPLG), the area-based approach is at the centre of attention in the Netherlands. An area-based approach is an integral approach in which multiple actors are working together on several issues and societal challenges in one specific area. Examples of such challenges are housing, energy, climate, biodiversity, nature, water, and agriculture. The focus of the dialogue in this MAP was on climate adaptation in an area-based approach.

An inventory was made within the P10 municipalities to identify interesting examples of the area-based approaches to climate adaptation and the interest to organise the MAP dialogue. Three municipalities showed interest: Peel en Maas in the region North Limburg, municipality of Berkelland in the region Achterhoek, and the municipality of Schouwen—Duiveland located at a former isle in the South-West Delta area of the Netherlands. The three regions have each developed their version of an area-based approach. All three regions are in a different phase of development. This diversity offers the opportunity to share knowledge and learn from each other and to deepen the area-based process. It was decided to organise three regional MAP dialogues inviting local actors from science, society, and policy. The P10 Europe working group together with Wageningen Research and regional coordinators have facilitated the organisation of a regional MAP dialogue and the exchange between the regions. This MAP position paper reflects on the outcomes of these dialogues. It aims to provide insight how different municipalities, members of the P10 are working on climate adaptation within an area-based approach and provide recommendation how policy and research can support these processes. The MAP Position Paper answers the following key questions:

- What are the needs of these three regions in relation to climate adaptation as part of an area-based approach?
- What are the policy interventions and what are examples of actions taken addressing these needs within the area-based approach in each of the regions?
- Which policy recommendations do MAP members have for local, regional, and/or national levels? And how can the EU support the further development of climate adaptation within an area-based approach in these regions?
- How does knowledge play a role in these area-oriented approaches? What are the knowledge gaps and what research projects are needed?

This MAP position paper provides the answers to these questions as they were discussed in two regional MAP dialogues and the desk study and preparatory conversations in Schouwen Duiveland. In the MAP dialogues, the focus was more on the organisation of an appropriate area-based approach than on measures for climate adaptation as such. In a way, the area-based approach is the policy instrument that requires the

most attention in the regions. As a follow up in autumn 2022, the experiences in the regions and the insights and findings in this position paper will be further discussed in a national dialogue where the other P10 members and research and societal actors will be invited to deepen the dialogue on area-based approach and multi-level governance in rural areas.

2. Current situation based on background research and evidence

In the Paris Agreement convened that, in addition to limiting climate change as much as possible, adaptation to climate change is necessary. Over the past decade awareness on the need to take action against and adapt to climate change has increased at international level as well as the European, national and perhaps most important, at the local level.

European level

The European Union (EU) has adopted ambitious legislation across multiple policy areas to implement its international commitments on climate change. EU countries have set binding emission targets for key sectors of the economy to substantially reduce greenhouse gas emissions.

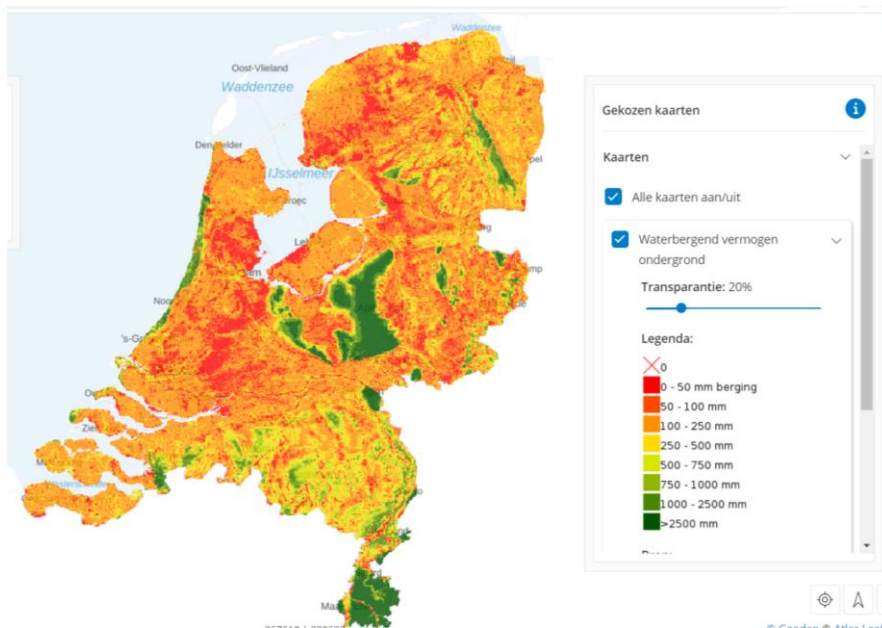
One of the latest climate packages (July 2021) developed, is the so-called “Fit for 55 package”. The main goal is to reduce of greenhouse gas emissions of 55% by 2030 compared to 1990 levels. The package consists of several legislative proposals, which are intended to ensure the realisation of the objectives of the Green Deal. The overall goal of the Green Deal is to make Europe a climate-neutral continent by 2050.

Despite its efforts to reduce CO2 emissions, the EU is taking into account the inevitable consequences of climate change. Early adaptation to climate change should make Europe more resilient and reduce the societal, social, economic, and environmental costs of climate change. Adaptation to climate change is also known as climate adaptation.

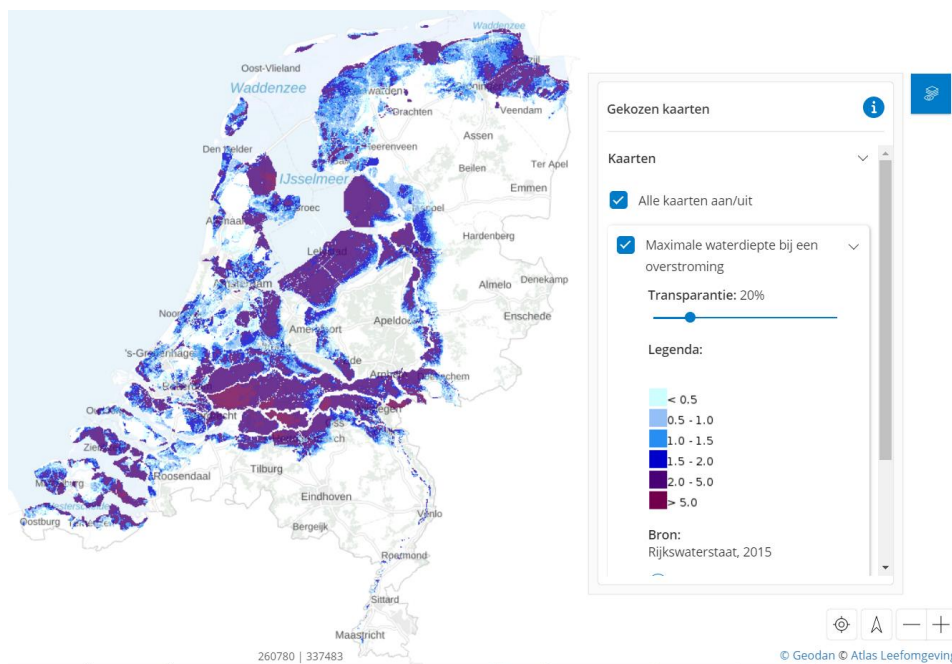
The EU must be fully capable of adapting to the effects of climate change by 2050. To achieve this, a new climate adaptation strategy was developed in 2021 as part of the European Green Deal. This strategy aims to ensure that the EU is socially and economically resilient to the effects of climate change. The new adaptation strategy aims for smarter, faster and more systematic climate adaptation and more international attention to the adaptability of countries and regions.

National level

Over the past few years, awareness on the issue of climate change have also increased in the Netherlands. Indeed, the Netherlands is partially located below sea levels and therefore particularly vulnerable to the effects of climate change. At the same time, the country has a strong position in innovation and knowledge development and aims to play a globally leading role in the area of climate adaptation. The map below shows the water retaining capacity of the soil. This is an indication of the proneness to drought.



Map 2 shows the maximum water levels in case of flooding



Bron atlas van de leefomgeving

The increasing attention to climate is reflected in a number of country visions and policy programmes. Examples are the Energy agenda (2016), the coalition agreement of 2017, and the national climate agreement in 2018. In 2020, the government presented the National Environmental Vision (NOVI for its Dutch Acronym), a long-term vision on the future development of the living environment in the Netherlands. The Netherlands is faced with a number of urgent social challenges, which play a role both locally and regionally, nationally and internationally. Large and complex challenges such as climate change, energy transition, circular economy, accessibility and housing will change the Netherlands considerably.

The new coalition agreement of 2021 further consolidated the attention for climate stipulating that the carrying capacity of the water and soil system will be the guiding principle for land use in rural areas. This

contributes to meeting international obligations in the field of nature, climate and water and to a climate-proof design and management of the rural area.

The Dutch climate adaptation policy is laid down in the National Climate Adaptation Strategy (NAS) and the Delta Plan on Spatial Adaptation. The NAS offers perspective to all programmes in the Netherlands in which parties work on climate adaptation and facilitates this work. The Delta Plan specifically addresses the consequences for water management. The NAS is the Dutch response to the call of the European Commission to adopt a climate adaptation strategy by 2017. In June 2022, the Ministry of Agriculture, Nature, and Food launched the National Programme for Rural Areas. This programme provides an impetus for the elaboration of the core objectives nature (including the nitrogen approach), water and climate into regional goals and structuring choices, including the relationship with agriculture. These form the basis for the elaboration of the broad provincial area programmes (LNV, Rijksoverheid, 2022). The plan states clear objectives:

"The rural area will have to change considerably. We want to improve the quality of our nature, make our water system more robust and healthier and on the way to a climate-neutral rural area. Nature can no longer wait and major steps will have to be taken in several areas, not least in the field of nitrogen deposition overload."

The announcement summer of far-reaching measures and a map specifying the directional nitrogen reduction targets for specific areas was received with huge concern and emotions in the agricultural sector and led to widespread and sometimes violent farmers demonstrations. A national dialogue seemed to have smoothed the tempers a bit, however it is still high on the agenda and topic in any rural conversation or dialogue. The provinces have until July 2023 to develop the area programmes in an integrated and area-based approach.

Besides the Green Deal and the Common Agricultural Policy a diversity of topical directives guide the land use in rural areas. The most relevant in the context of this MAP are the Birds (1979) and Biodiversity (1992) directive, which were combined in the Natura 2000 aiming to maintain or restore species and habitats to a favorable conservation status. Furthermore the Nitrate directive (1991) aims to reduce water pollution caused or induced by nitrate from agricultural sources and the water framework directive (1995) integrated several water related legislation and aims at cleaner rivers and lakes, groundwater and bathing waters for citizens, environmental organisations, nature, water-using sectors in the economy. These directives all influence the forcefield in which the P10 municipalities work on climate adaptation in the area-based approach.

3. Position of the Multi-Actor Platform

This chapter presents the position of the MAP P10 concerning the needs and challenges related to climate adaptation within an area-based approach and the recommendations on what types of policy interventions and research actions could support the further development of climate adaptation. In section 4.1, each of the three regions is briefly introduced and the identified needs and existing interventions and actions with regard to climate adaptation within an area-based approach are described. Each regional section ends with some lessons learned. The section ends with an analysis of the differences and similarities between the regions. Section 4.2 describes the recommendations for policy and research building on the results from all three regions.

3.1. Needs and interventions in the three regions

3.1.1. North Limburg

3.1.1.1 Introduction to the region

The P10 municipalities of Peel en Maas and Horst are part of the region North Limburg, which is located in the South Eastern province of Limburg bordering Germany. The region consists of 8 municipalities and had 282,867 inhabitants in 2020. The region has two more densely populated municipalities (Venray and Venlo) where most industry, logistics companies, and regional facilities are concentrated. Important to mention the Brightland Campus in Venlo where different companies and knowledge institutions join forces to support the development of innovative plant production chains. The area is characterised by a reclamation landscape where peat has been dug up and water control needed to be controlled to convert it to agricultural land. Currently, North Limburg is mainly an agricultural area with, in addition to agriculture, also an important role for intensive livestock farming and greenhouse horticulture. The region contains three bigger and several smaller Natura 2000 areas. The river Maas cuts through the area from north to south and is connected to a fine-meshed network of West-east oriented stream valleys and a number of channels. The quality of the water in the stream valleys does not yet meet the EU water directive in many places.

3.1.1.2 Identified needs in North Limburg

All the challenges with regard to climate adaptation, drought, flooding, heath, and extreme weather are also in varied ways at stake in North Limburg. Within these general topics, water quality and fresh water supply are mostly relevant in North Limburg. Fresh water is harvested from the River Meuse, in dry periods when the river is low, the water quality becomes a problem. Water availability issues and desiccation become most visible in the drought-sensitive sandy soils and the stream valleys. Tensions on the water file occurs around the different requirements and competing water demands for nature and agriculture.

In addition to climate adaptation, the area hosts many different and complex challenges that require an integral solution. The high levels of intensive livestock farming creates high ammoniac emissions and a major nitrogen problem for the local nature areas. The transition of agriculture is a serious challenge and there is an important task on energy transition with isolation and production of renewable energy. All kinds of tasks and challenges come together in this area.

With this diversity of sectoral challenges and transitions, an important need identified in this region is to tackle the various issues in conjunction with maximum commitment to multiple use of space and land. Climate adaptation is then one issue that needs attention, next to health, housing, energy, agriculture, water and nature conservation. Instead of starting with the sectoral tasks and challenges, the ambition is to develop an area-oriented approach that starts with the identity and strengths of the region and use this as a basis to make the local puzzle of societal and sectoral tasks and challenges. In the proceedings, approach will be indicated as 'identity based approach'. During the MAP dialogue, especially the challenge of achieving a

future-proof agriculture within the boundaries of healthy living environment received most attention. This focus can be understood from the societal unrest and tensions around the development of the NPLG at the time of the dialogue.

3.1.1.3 Existing Interventions and Actions

Besides the policy that was described in Chapter 2, a provincial vision as well as a regional vision for North Limburg have been developed. These sets the aim to create a good business climate with strong social cohesion and excellent environmental qualities. A sustainable circular and inclusive economy plays a key role in this. The region vision for North Limburg sets the ambition to become the 'healthiest region', this is used as a guiding principle for the regional development.

The notion the meaningful connections for rural development are found in the identity and in the capillaries of the region. The identity based area-oriented approach in North Limburg treats climate adaptation as a part of the integral spatial consideration at area level. The approach focusses on the identity of the area as a basis to put the puzzle of challenges for the area. A first pilot with this approach is developed in The Peel (one of the municipalities) to explore the value of this integrated identity-based approach. The main characteristics of the region's identity have been studied and described and scenario and development perspective have been developed through desk studies, interviews, and a series of workshops in this specific area. At the time of the MAP dialogue, the first version of the development perspective was presented to the actors involved in the pilot. The perspective is meant to later serve as building block for the municipality to develop their plans for the future or the area (omgevingsvisie) in conversation with the diverse inhabitants of the area.

Starting with the experiences in pilot De Peel so far, the first part of the regional MAP dialogue focused on exploring different angles and aspects of this identity based approach, some lessons are shared below. The second part of the dialogue focused on defining recommendations for EU policy and research to support this specific area-oriented approach to climate adaptation, these are described together with the other regions in section 4.3.

3.1.1.4 Some lessons learned in North Limburg

This puzzle of the complex of assignments that need a solution in the area, needs to be made in the regional actors. It is important that on the one hand there is direction and boundaries and at the same time give enough space to puzzle. The connections that are needed to solve these challenges are built between people within the capillaries of the area. An inspiring example of connecting challenges arose from contacts during the pilot and the MAP dialogue. Municipalities, education, research organisations and a company in the insulation business created the idea to develop a chain for local biobased insulation materials to supply the area. This initiative would contribute to the transition in agriculture, reduction of nitrogen, energy and creating employment opportunities at the same time.

In each local area, specific challenges play out in different ways, with different emphasis. In one area, water quality, nature, and intensive agriculture may be the issue, where in another it is high water, biodiversity, and housing of migrant workers.

Soil and water are leading in all major policy programmes; the NPLG and delta program. Though there is little debate about that, there is a risk that sectoral tasks are imposed onto the area. When regulations are made and a full scheme of requirements and conditions are attached to it, it decreases the room for manoeuvre to put the integral local puzzle together.

When the national goals are clear and are connected to the goals of the area, then this invites creativity and opens a world of solutions. It is important to learn how to connect higher scale issues to the local challenges, not as a linkage opportunity, but on the basis of equal importance of goals. This requires flexibility from the government, the province, and the region in terms of funding and conditions and also in terms of goal realisation. This is new and requires learning; funds have always been connected to goal realisation. It is

needed to dissolve the sectoral boundaries and aim for optimal integral results instead unilateral of sectoral maximisation. That is something we do not yet have instruments for.

More recommendations for European, national, and provincial policy from this regional dialogue are presented together with the other regions in section 4.3.

3.1.2. Achterhoek

3.1.2.1 Introduction to the Achterhoek

The P10 municipality of Berkelland and Bronckhorst are part of the region 'Achterhoek' (located in the East of the Netherlands) counts more than 380,000 inhabitants in 11 municipalities. The landscape is varied and small-scale. The atmosphere in the region is often characterised as cozy and the people tend to have a strong sense of neighborliness. Historically the area used to be swamp area, it took dedicated drainage and water management to prepare the land for agriculture and settlements. The region is characterised by a dairy farming landscape with gras and maize to feed the animals, soils are mostly sandy. Besides dairy farmers there are some arable farmers, which have potatoes as their main crop. About ten percent of the territory of the Achterhoek consists of nature areas. The region holds by a wide variety of nature, different types of forests, raised bogs, heather bluegrass meadows, drifting sand, river dunes, streams and levees with stream valley vegetation. There are several Natura 2000 areas in the region, the floodplains of the IJssel and the Korenburgeveen in the East. Big part of the area does not contain major rivers or water streams, making the area very dependent on rainfall for agriculture, nature conservation and fresh water supply.

3.1.2.2 Identified needs

The climate challenges in the Achterhoek region are significant due to the limited availability of water. Three of the past five years were extraordinary dry. In periods of drought and little rainfall, the ditches dry up, biodiversity reduces, especially coniferous forests and heaths suffered from drought (Nederlands Dagblad, 2022), and damage to agriculture can be noticed (Vitens, 2022). The region is mostly depended on rainwater, because in the Achterhoek little water can be taken in from the Rhine or IJssel rivers. Therefore, the Achterhoek region is especially vulnerable to drought. However the landscape was characterised by swamps that stored water and contained high levels of organic matter (Prenger, 2022). Heathlands and sand drifts were created as early as the Middle Ages by drainage through canals and ditches, in combination with ploughing the soil and overgrazing by cattle. Besides the need to deal with drought, there is also a need to prepare for extreme hot periods and rainfall. Water scarcity increases competition between different users such as for example, the water company Vitens, the shipping industry (on Rhine river and IJssel river), the agricultural sector, and nature areas. In extreme dry periods, farmers are sometimes no longer allowed to use surface water, thus risking their yields. With severe dry years in 2018 and 2022, the actors in the Achterhoek are more and more aware of the urgency to find solutions for the drought. Besides drought and climate adaptation, the high levels of nitrogen on nature areas, the transition in agriculture and energy transition are also important issues on the regional agenda.

3.1.2.3 Existing Interventions and Actions

The municipality of Berkelland together with the region of the Achterhoek has a strong history of regional collaboration. Municipalities, the province of Gelderland, farmers organisations, the waterboard tend to have rather good working relations and the Achterhoek culture is characterised with a strong belonging and an attitude to solve problems together. With regard to climate adaptation provincial adaptation strategy has been translated to municipal plans.

Since 2020, the region is developing an administrative agreement Aanpak Droogte Achterhoek (Achterhoek approach to drought). Together with the province, water board, farmers organisation, nature organisation and the drinking water company, the municipalities are committed to drought and climate measures for both the short and long-term in the various sub-areas of the Achterhoek. The starting point is to find structural

solutions together to find a balance between weather extremes, too wet and too dry. A joint fact finding had created a strong shared sense of urgency and of interdependence. Partners became aware that the task is huge and not one party can solve this alone and that if nothing is done, nature, landscape and agriculture will suffer great damage from drought and climate change in the coming decades. The programme combines short-term measures to make progress and gain confidence with spaces for developing longer term perspectives and action frames. For example, in close cooperation with farmers, 250-300 drought weirs have been installed to retain water at water system level on a larger scale. Waterways have also been made less deep and others were filled in to replenish the groundwater. Some specific challenging situations are dealt with in field labs to collaboratively develop specific solutions for which serve the purpose of finding solutions and learning for the purpose of the long term action frame (handelingskader). The communication and involvement of citizens one of the lines of action in the Achterhoek approach. Though there are some challenges ahead, the progress so far and especially the sense of collaboration between the partners is evaluated constructive and positive. The strong cooperation and the experience gained in recent years will be used to combine the drought approach with other major issues such as nitrogen, housing and green energy for 2022-2023. Recently the Control room (regiekamer) Rural area Achterhoek has been launched to better manage and coordinate the large spatial and urgent challenges that exist in the rural areas of the Achterhoek.

3.1.2.4 Some lessons learned in the Achterhoek

For the area-based approach the social capital of the region is a strong asset. In the region, people have a sense of belonging to the area, an attitude of solving problems together, a willingness to seek understanding and to continue to talk with each other, even if the situation is challenging. Another feature that helped the area-based approach in the Achterhoek is the fact that the water board Rijn en IJssel has generally good working relations with farmers and a long experience of working with area brokers. These are normally farmer themselves who speak the language and understand potential problems. They visit farmers and openly discusses possibilities and plans with them at the kitchen table.

The management of the Aanpak Droogte Achterhoek programme seems to have successfully built on and strengthened this social capital. A crucial aspect of this is that the Achterhoek approach does not belongs to one of the partners, not one is in the lead more than the other. Also, the partners share the ambition and coordinate action, but each partner has their own activities and resources. Deliberate attention is paid to the balance between the administrative and official organisation and the partners. The programme is supported by and belongs to each of the partners.

Despite the positive experiences and the strong basis, the Achterhoek also still has a long way to go. In the longer term, sometimes more difficult choices will need to be made, for example between different types of land use such as nature and agriculture or between agriculture and fresh water supply. Also the question on how to combine the decision-making regarding drought measures with other societal goals, is a challenging one. The region is searching for truly integral ways of dealing with land use and spatial planning. The NPLG is just landing and the principles of working are being arranged. The Achterhoek clearly wants to define their own way of working and want to do it together. One of the partners expressed it clearly: "We don't know yet exactly where we're going, but we have to find the way together, holding onto each other, staying in conversation, we can only do this together."

More recommendations for European, national and provincial policy from this regional dialogue are presented together with the other regions in section 4.3.

3.1.3. Schouwen-Duivenland (on the basis of interview and documents)

3.1.3.1 Introduction Schouwen-Duiveland

Schouwen-Duivenland is a municipality and former island located in Zeeland; a Dutch province located in the South West. The municipality with more than 34,000 inhabitants is part of the Zuidwestelijke Delta (Dutch

for Southwest Delta) is a former island surrounded by the Oosterschelde, Grevelingen and North Sea. These waters are for N2000 allocated areas. On land, the main parts of the coastal area are also for N2000 allocated areas. The area is infrastructurally connected to other countries and regions by the delta rivers and the North Sea and is therefore considered an open area with close connection to other markets and cultures. The large share of water and nature reservoirs in Schouwen Duiveland is used by a diverse group of stakeholders, i.e., coastal recreation, water recreation, shipping, wildlife, and nature conservation. Moreover, the area lies below sea level, which is why the landscape is characterised by pumping stations, locks, dams, levees and dams. The municipality was severely hit by the Great Flood of 1953, which caused 1836 victims. Because of the Great Flood and Deltaworks that started as a consequence of the Great Flood the inhabitants did turn their back to the water because of a great trust in the dikes and dams.

3.1.3.2 Identified needs

Climate change increases the risk of flooding, extreme heat, and prolonged drought. This poses risks to the economy, health, and safety. It is of great importance that Zeeland adapts to these changes. Due to accelerated sea level rise, the safeguarding of water safety is of great importance. In addition, significant damage can occur in urban and rural areas. Downpours and prolonged precipitation cause flooding. Waterlogging and floods are challenging for Schouwen-Duiveland since the area lies below sea level and water cannot easily be drained. Water logging on agricultural fields endangers yields. Also, the rising sea level increased the problem of salinisation for agriculture. At other times, drought damage occurs, waterlogging and floods are challenging since the area lies below sea level and water cannot be drained. Water logging on agricultural fields possibly damage the yields. Moreover, the rising sea level increased the problem of salinisation for agriculture because the plentiful water available all around the island is salty and not suitable for drinking or agriculture. There is no sweet water available on the island except rain water. That is the reason the municipality works with a lot of stakeholders in a Living Lab on solutions for smart storage and use of rain water for mainly agricultural purposes and nature conservation. Heat causes eviction problems on bridges and other infrastructure. Heat also affects the health of vulnerable people, such as the elderly and young children.

3.1.3.3 Existing Interventions and Actions

In the Delta Decision on Spatial Adaptation, it was agreed that governments will ensure that damage caused by heat, flooding, drought and flooding increases as little as possible and pay attention to this when constructing new residential areas and business parks, refurbishing existing buildings, replacing sewers, green management and road maintenance. Following this, it was agreed in the Delta Plan 2018 that municipalities, water boards, provinces and the central government want to accelerate the process of spatial adaptation.

The 'working region Zeeland' has taken three steps to implement the Delta Programme on Spatial Adaptation: conducting climate stress tests, entering into a dialogue with society and drawing up a regional climate adaptation strategy with a corresponding investment programme. A provincial climate adaptation strategy was approved in 2021. The ambitions and decisions in the Zeeland Climate Adaptation Strategy have been translated into a joint-implementation agenda in which an area-based approach and the development of an assessment framework for climate adaptation play a prominent role. The implementation projects are partly financed by National Investment Scheme for Climate Adaptation. An example of a measure that is being implemented is that the municipality of Schouwen-Duiveland supports, in co-production with the province of Zeeland, the agricultural sector to take collective and farm level climate-adaptive measures, such as crop breeding, soil improvement and economical water use.

In Schouwen-Duiveland, over the past years, a lot of attention is paid to awareness raising and capacity-building. Therefore Schouwen-Duiveland was a partner in European projects, funded by Interreg, as Climate Proof Areas, Coastal Communities 2150, Star2Cs and Impetus. In these projects, a lot of attention is paid on involvement of the community in complex problems like climate change and sea level rise. To raise awareness, inform people and support dialogue several means of communication are developed. This means

also contribute to the ambition of the National Flooding Museum to develop from a National Remembrance Centre to an international Knowledge and Inspiration Centre. A multi-actor climate stress test was conducted and a dialogue was organised. An exciting initiative is the Living lab Schouwen Duiveland where many parties work together on developing new, innovative solutions to complex challenges in the fields of water, food, education and governance. Within the Living lab projects provide several activities such as: farmers citizen science, research, coaching, field labs, knowledge network and investment vouchers. Currently the municipality is preparing the translation of it to the local level with the involvement of citizens and several societal stakeholders.

3.1.3.4 Lessons learned Schouwen-Duiveland

A clear role distribution and the development of good working relationships in which the partners mutually reinforce each other is an important for a smoothly running area process. The experiences in the living Lab show that it is important in the development and implementation to use the organisation that has the best contacts. Schouwen Duiveland has made good progress on the theme of climate adaptation by making use of the funds in IBP vitaal platteland and European subsidies.

The field lab and living labs have allowed connecting well with the needs of the landowners and the collective of landowners in a polder. The partners in the living lab have to know the polder well, learned to see possibilities and think out of the box. In this way, they develop and test new solutions which are then scientifically validated together with KRW, HAS, and WUR. The governance issue also receives attention in collaboration with Erasmus University Rotterdam. It works well if you have short lines of communication, so that you can coordinate for example with the water board and the province if innovative plans do not directly fit the existing regulation or way of working. If partners have the same goal and trust each other they can together provide space for experimentation with promising solutions. The experiences can then provide input for policy options and measures.

It is important to start together from the beginning and create a safe environment. EU-funded projects can contribute well to that security and the knowledge that other European countries are also working on a topic also contributes to a greater sense of urgency. If you really involve all partners in this way, people tend to develop more positive mindset and the willingness to implement measures also increases.

3.2. Some reflections on similarities and differences

All three regions Achterhoek, Noord Limburg en Schouwen-Duiveland work in their own way within the same frame of policy options and societal issues. The frameworks are the same, the same terms come back: integral, area-oriented approach, water and soil leading. The province, municipalities and water board play an important role in all three areas. These partners are busy with the question of how they can give concrete shape to the (inter)national and regional challenges in their area. Agriculture is getting a lot of attention in all three areas, this is not surprising, especially not with the commotion around the NPLG.

All three parties emphasise the importance of working at the local level, where people know each other and the possibilities, indicated with terms as 'the kitchen table', 'in the capillaries of the area' or 'where the best connections are made'.

Differences are more in the order of things and the specific approach. These differences seem to be understandable from the history and the people involved, the culture in the region and the precise focus. In Noord Limburg the dialogue took place in a pilot with an identity base approach, in Achterhoek an approach for drought provided the setting where in Schouwen-Duiveland the dialogue is situated in the process of developing a municipal climate adaptation strategy. The differences between the three regions also reflect the different culture and history in the area and thereby exemplify the need for area-based approaches not only in climate adaptation but also in governing the area-based approach. The regions have a great interest in sharing insights and learning from each other, both from the differences and from the similarities.

3.3. Recommendations from the MAP

This paragraph describes the recommendations based on the MAP dialogues in the three regions.

3.3.1. Recommendations for future rural policies

European and national policies should provide clear long-term goals and set boundaries. The sense of urgency for change in the domains of agriculture, energy, biodiversity, climate, water, and soil importantly stem from European legislation and directives, which are translated to national policies. This way the European Union plays an important role in setting an ambitious framework for local rural development. Though this role of Europe is not always perceived clearly, during the MAP dialogue it was appreciated for safeguarding public interests. In the rural reality, restrictions are perceived more clearly than the opportunities and support, this contributes the societal feelings of dissatisfaction and some separation. European policy should provide as much clarity about the direction and scope of change as possible but avoid boarding up with too much specific regulations and requirements. More clear and attractive communication on the long-term perspective and rationale for different policy objectives would facilitate actor involvement and connecting the area-based process constructively to the bigger European picture. Both European and national government should specifically strive to be a reliable partner, a reliable government.

The European Commission needs to give rural areas the room and confidence to develop area-based approaches to solve the puzzle of societal challenges within their rural reality. The area actors need room for maneuvers to take their own decisions that fit their ambitions and challenges towards desired development. The combination of different societal challenges becomes visible in the capillaries of the area. That is where problems and solutions become clear and where the most interesting connections between different challenges, actors and solutions can be made. Actors know each other and understand the physical setting and the culture of the region which importantly determines what works well and what does not. The policy frameworks should allow room to make best use of the available human and social capital for sustainable rural development. In too many situations, problem definitions and solutions in rural areas come from urban-oriented institutions with an urban perspective. Rural communities are very well capable to come up with solutions themselves and address the connection with services and amenities in urban areas, for instance regarding to cost-efficiency or most practical application. Giving the room and trust to local actors to decide together how to integrate and solve the societal challenges in their own area also has importance of its own. It strengthens capabilities, social cohesion and quality of life in the rural area. These four lines of reasoning sustain the importance for higher-level policy to facilitate room for the area-based approach within the framework of clear long term goals and boundaries that safeguard the public interest. A condition for solving the puzzle is that the local goals and ambitions assignments are treated with equal value as those from higher governance levels. In each situation all the challenges need to be on the table and all actors be committed to solve them together. Europe should be reticent in that process, but may be able to stimulate the exchange of knowledge and experience on how different areas based processes link long-term and short-term; how they connect European, with national, provincial and local policy levels; and how they balance public and private interests and investments are some of the topics for exchange.

European and national governments have a role to invite and encourage those developments which are desirable for the future but do not happen by themselves. For example, cross-border cooperation is important for many climate change effects especially flooding and drought, water does not stop at the border. In practice, collaboration does not get enough attention or actors run into complexity due to differences in legislation, objectives and scales of governance. Also, the number of stakeholders and interests increase, and new connections need to be built. It was suggested that the European Commission can **enable and encourage cross border cooperation** in situations where this has clear advantages. This can be done for example by adding this as a prerequisite for grants and subsidies or by supporting the alignment of regulations and procedures between border regions. A less complex collaboration, which Europe can support, is creating **opportunities for exchange, capacity building and collaborative search.**

International exchange and cross-visits through European grants are perceived as excellent methods for raising awareness and inspiring action. Visiting a country with similar challenges or specific solution is generally very inspiring for both hosts and visitors. It strengthens the feeling of being together in facing similar challenges. Moreover, afterwards the visitor tells the stories and stimulates to try new things or be more ambitious it can boost the creation of a common mindset. Exchange can be organised on specific topics, with specific climatic zones or with other countries that use an area-based approach. Living labs or field labs have shown to be interesting spaces for collaborative search on suitable climate adaptation measures. These field labs have the potential to bundle attention, expertise and resources to tackle complex problems or to accelerate climate adaptation in specific situations. Europe should continue to facilitate such innovation spaces.

Build on and strengthen the regional cohesion and identity. Every region has its own culture and requirements and their own strength and identity. Regional identity is not only the history, the culture or and the landscape, but also the connectedness and level of trust among actors and the attitude to change. This invites specific types of governance; each area should be able to select the governance method that fits best. The European Commission can do more to learn to understand the diversity and identity of local areas. Besides the top-down approach with directives, programmes and ambitions, there is a need direct channels of communication and facilitation. It is constructive and appreciated if EU officers visit and engage with local realities and are interested to learn about area-based approaches at local level. The regions are eager to share their experiences and ideas and expressed a desire for two-way communication based on trust and shared ambitions.

Create secure mechanisms for flexibility in timing, funding and even delivery of goals. A returning observation in the area-based approach is that the strict sectoral goals and funds make it almost impossible to solve the local puzzle. Although justification of expenditure of public funds needs to be secured, also flexibility and room for manoeuvre are required to integrate local problems and ambitions on equal basis with provincial, national and European goals and agreements. Many examples were given where solutions that could serve different important societal challenges at the same time, were not implemented due to conflicting goals, regulations or time frames. Create possibilities and arrangements for short-term measures and especially investments related to long-term goals. This generates more comfort for regional and local decision-makers and politicians to take decisions who have their ultimate effect after their period elected because short-term results are yet visible and experienced in their period elect. The way in which financial resources are available sometimes influences too much the type of action that is deployed. Budget rules make it necessary that the municipal and provincial budgets must be balanced for several years. This means that sometimes a pilot or living lab is chosen so that no structural resources must be made available. But this does not always benefit the long-term solution. There should be some room to optimise the integral puzzle; to sometimes settle for less on one target, because this serves the achievement of other targets. This requires trust, careful dialogue and the development of appropriate instruments and balancing mechanism to allow mutual trust building and create secure flexibility.

Encourage cooperation between different sectors and levels of management and governance. Each level, sector and actor has its own reality with its own language, work rhythm and focus areas, which is not automatically understood by other stakeholders. It is important to learning to switch between levels while retaining value and meaning. It is about learning to understand each other's' reality and to translate challenges and solutions two-sidedly between levels and sectors. Meaningfully connecting European and national policy with regional and local levels of governance and the rural reality deserves careful attention.

In summary, the EU and national policy importantly influence the forcefield in which the area-oriented approach takes shape. First of all, European policy sets guidelines and boundaries that clarify the direction and urgency of the main societal challenges. Translated to national and provincial policies these challenges become part of the local reality and the forcefield in which the area plans it is future. The significance and importance of the role of the EU policy is acknowledged and little debated. In general, the MAP participants see the role of EU policy consists of giving direction and boundaries, sketching future

perspectives and stimulating the regional power to change. Furthermore, EU and national policy can support dialogue, exchange and networks creation. Foremost higher-level policy should give room, confidence and support to local actors to solve their puzzle together. They are able to make the choices that fit the societal challenges and the aspirations and identity of the area.

3.3.2. Recommendations for knowledge development and future research

Knowledge and information play a crucial role in the different stages of the area-based process for climate adaptation. Firstly, at the start of the area-oriented process research and information is needed to create an overview of the problem, a sense of urgency and a common starting point for the process. For this role, it is crucial that the information is securely based and becomes owned by all participants. The joint fact finding that was used in all three regions serves this last purpose and has proven to serve the smooth start of the area-based process. It is a good practice to use attractive media such as video or animations to share the insights from the fact-finding with a wider group of actors. Secondly, in the development of solutions technical knowledge of different possibilities is required. Knowledge and citizens science can play an important role in creating awareness and actively involving farmers and landowners in the process. Moreover, process knowledge is required, especially the capacity to facilitate the area-based process and to stimulate network building and joint learning. Thirdly, in implementing measures with stakeholders, a sound knowledge base and appropriate skills are needed to secure quality of implementation. Developing the appropriate type of knowledge requires availability of research results, sharing of experiences, and training.

Support and stimulate educational institutions to take their role in creating a sustainable future for rural areas. In the Netherlands, educational institutions are financed based on numbers of student. This gives a high priority to the interest of students leading in the design of the content of educational programs. Young farmers who want to take over the family farm are not always at the forefront of future orientation and change. However, this generation has an important role to play in realising the transition of the rural areas. The transition is in progress but requires stimulation and support. This involves inspiring students' power to change and their capacity to design for the future. Rural areas can win popularity as a working place for the youth by showcasing and communicating the exciting field of international rural work and the opportunity to contribute to solving societal challenges in rural area. In addition to the potential role as change agents, today's students also have an important role in providing the skills, labour and knowledge to implement the transition. For example, the energy transition requires plenty installers of solar panels and insulators of houses, the agricultural transition requires climate smart farm advisors and skilled facilitators to guide the rural dialogue and area-based approaches.

A higher-level fundamental challenge to which the MAP participants believe that **Europe can potentially contribute to is the development of mechanisms and instruments to balance sharing costs and benefits between public and private actors.** Currently, several perverse incentives exist within the system. These incentives can make seem rational for individual farmers, but also for banks, advisory services, and the chain, to make decisions that jeopardises the realisation of societal challenges. The decisions that contribute to the tasks are not always economically feasible. European policy could help to stimulate and unambiguously implement what is desirable for the future and discourage directions that have less or no perspective. Specifically, promoting production for local market and extensification of production is mentioned. This challenge is wider than the rural area. As a European society, we have to learn at all scales and levels how to include all costs and benefits and then distribute them fairly between private and public parties. The EU could stimulate exploration, dialogue, and learning on this question.

Support the development of attractive and practical business models for sustainable agriculture. The far-reaching change of farming system which is required from some farmers require serious investments. These should be economically feasible in the long-term. The role of subsidies is seen as valuable to support the transition, but in the long-run entrepreneurs do not like to be dependent on them. This sentiment is strengthened by the increasingly low trust in the government. The stimulation of market

development is considered more important. Temporal guaranteed sales for products from the systems that the society find desirable is also mentioned. In general, the European Commission should promote and enable what is desirable and discouraging what does not fit with the future perspective. This creates a force field in which entrepreneurs develop new revenue models themselves. The European Commission can then play a role in sharing these business models and promoting exchange between countries and territories. Not all are aware that European research programmes are already actively taking this role.

Develop experience and instruments to deal with sensitive issues in the area-based approach.

Actors in an area-based process sometimes extensively try to keep it peaceful and therefore postpone delicate issues and difficult decisions to the longer term (or to stay in the safe boundaries of a pilot or living lab). Taking some more time or exploring challenges in a lab or a pilot is a valuable strategy as it creates a safe space or to take time to develop confidence and trust before working on the more complex issues. However, the risk is that postponing becomes avoiding. Sometimes difficult choices need to be made for example between different actors' interest or between sectoral challenges. Many valuable tools, instruments and experiences are being developed in different sectors and areas, it would be worthwhile to support the exchange experiences with taking difficult choices in area-based processes. Another sensitive issue is how societal challenges also may need adaptation when the climate is changing. One should dare to ask and discuss if and how maintainable specific biodiversity and nature conservation targets are when the climate changes. The Interreg project Star2Cs amongst developed an adaptive pathway approach and framework for combining climate adaptation with Natura 2000 objectives. It is a vulnerable challenge to find a balance between defending strongly debated goals and agreements on one hand and to opening up a space for questioning specific conservation targets on the other. This can only be done if there is a basis of trust between the actors involved and some general agreement on the ambitions. Europe should continue to play an important role in creating this safe space for dialogue on integral climate adaptation.

Conclusions

All three regions Achterhoek, Noord Limburg and Schouwen-Duiveland work hard to create their own area specific path within the same frame of policy options and societal issues. The same terminology is used: integral, area-oriented approach, water and soil are leading. The province, municipalities and water board play an important role in all three areas. With a diversity of stakeholders they are solving the puzzle to give shape to the (inter)national and regional challenges in their area. Not surprisingly with the current launch and commotion around the NPLG, agricultural transition is a hot topic in all three areas.

All three regions emphasise the importance of working at the local level, where people know each other and understand the possibilities. This level is indicated with terms as 'the kitchen table', 'in the capillaries of the area' or 'where the best connections are made'. The regions have a great interest in sharing insights and learning from each other, both from the differences and from the similarities.

Differences are more in the order of things and the specific approach. These differences can mostly be understood from the history and the people involved, the culture in the region and the precise focus. The identity of the area does not only impact on the specific climate adaptation measures or the parts of the puzzle, but especially also on the way of governing the area-based approach itself. The regions are very capable of developing their own way forward.

European and national policy importantly influence the forcefield in which the area-based approach to climate adaptation takes shape. First of all, European policy sets guidelines and boundaries that clarify the direction and urgency of the main societal challenges. Translated to national and provincial policies these challenges become part of the local reality and the forcefield in which the area plans its future. The significance and importance of the role of the EU policy is acknowledged and little debated. In general, the MAP participants see the role of EU policy consists of giving direction and boundaries, jointly sketching future perspectives and stimulating the power to change. Also, EU and national policy can support dialogue, exchange and networks creation. However, a central recommendation for European and national level policy is to protect and support room for manoeuvre, provide confidence and support to local actors to solve their puzzle together. They are able to make the choices that match the plentiful societal challenges within the aspirations and identity of the area.

References

WUR, 2022. Agro-innovatiecentrum De Marke. <https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksinstituten/livestock-research/Innovatiecentra-en-faciliteiten/de-marke.htm>

Vitens (2022) <https://www.vitens.nl/relaties/nieuwsberichten/samen-sterk-tegen-de-droogte-in-de-achterhoek>

Nederlands Dagblad (2022) Naaldbossen en heide staan er erg slecht voor door droogte. 09.08.2022. <https://www.nd.nl/varia/varia/1136657/naaldbossen-en-heide-staan-er-erg-slecht-voor-door-droogte#>

Prenger, K. (2022). De Nederlandse natuur door de eeuwen heen. Historiek. 16.07.2022. <https://historiek.net/de-nederlandse-natuur-door-de-eeuwen-heen/149348/>

ING (2014). Herstel blijft broos in Twente en Achterhoek. https://web.archive.org/web/20160304093104/https://www.ing.nl/media/ING_EBZ_Herstel-blijft-broos-in-Twente-en-Achterhoek_juni-2014_tcm162-43332.pdf

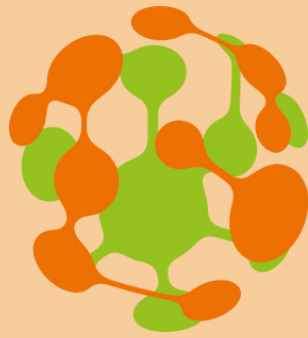
Atlas van de leefomgeving: <https://www.atlasleefomgeving.nl/kaarten?config=3ef897de-127f-471a-959b-93b7597de188&activateOnStart=layermanager&gm-x=145819.13194013375&gm-y=447497.2263238663&gm-z=3.548866333078989&gm-b=1544180834512%2Ctrtrue%2C1%3B1578048914305%2Ctrtrue%2C0.8>

Convenant Klimaatadaptatie Strategie Zeeland

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Impetus

Coastal communities 2150: https://www.essp.org.uk/wp-content/uploads/2019/11/Item-6b-Appendix-1-CC2150_Project_Flyer_Jan_20121.pdf



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