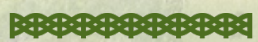


Modern Agriculture in an Ancient Landscape

Balancing cultural and ecological values with economic viability for farming in the Maasheggen UNESCO Man and Biosphere area



Maasheggen



WAGENINGEN
UNIVERSITY & RESEARCH

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2376

UNESCO'S 'Man and Biosphere'; Explore opportunities for farmers in the Dutch Maasheggen area

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Executive Summary

The Maasheggen area is a landscape in the Netherlands covering around 2000 ha, mainly situated in the province of Noord-Brabant but also partly in the province of Limburg. The area is famous for its ancient hedgerows. The Maasheggen recently gained a UNESCO Man and Biosphere (MaB) status due to its unique combination between natural and cultural values and agricultural enterprises. However, the hedgerows in the Maasheggen are under pressure because of agricultural changes. Global agricultural competition leads to the trade-off between costly hedge maintenance and intensive, profitable agricultural practices. The number of local farmers is decreasing, and outsiders threaten the preservation of local knowledge and connection to the land. To conserve and develop the landscapes' unique values, it is important to learn from the farmers in the area: the perspectives they have regarding the MaB status and the challenges and opportunities they see. The main question in this report is: *What actions can be undertaken by the programme bureau Maasheggen UNESCO to seize opportunities and to address challenges (through communication and stakeholder participation) to balance ecological and cultural values with economic viability for farmers in the Maasheggen MaB area?* The question was answered by looking at comparable areas (Rhön, Devon and the Ooijpolder) and interviewing farmers in the Maasheggen. When analysing the results, we distinguished between content and process-related aspects of the landscape (e.g. hedgerow maintenance versus communication with farmers). Then, the findings were studied in a SWOT analysis. Based on the SWOT analysis, three main themes were identified on which we propose some tangible action points:

- *Create a long-term plan and build a brand:* The farmers did not exactly know what the programme bureau did or what their goal was. Overall, they have not seen any difference in (the management of) the area since it received the MaB status. There were also some unclarities about the future for farmers in the Maasheggen and this caused mistrust and frustration. A long-term plan and a strong brand, both including local farmers, would create mutual trust and clarity. From the case studies we learned the importance of taking hard decisions and recognised that not everyone can be pleased, so that shouldn't be the aim.
- *Explore options to reform agri-environmental management:* The agri-environmental management of the Maasheggen was subject to a lot of critique from farmers. Working on fair financial compensation and the choice for independent or collective management of hedgerows are ways to keep the farmers more satisfied and involved.
- *Improve farmer involvement and communication:* As there are different types of farmers, it is advised to make stakeholder involvement more tailor-made. For example, general meetings are a solution to accommodate those that want to have their voice heard. A newsletter that informs everyone is a way to keep the less active farmers involved.

Table of Contents

1. Introduction	6
2. Study design & methods	10
2.1 Analytical framework	10
2.1.1 Landscape dimensions	10
2.1.2 SWOT analysis.....	11
2.2 Interview methodology	11
2.2.1 Semi structured interviews	11
2.2.2 Sampling method	12
2.3 Case study methodology	13
2.4 Guaranteeing validity and reliability	13
3. Results	15
3.1 Interview results.....	15
3.1.1 Balancing natural and cultural values with economic viability for farmers	15
3.1.2 Communication and stakeholder participation processes	17
3.1.3 Key findings interviews.....	19
3.2 Case studies.....	19
3.2.1 Rhön MaB area	19
3.2.2 North Devon MaB area	22
3.2.3 Ooijpolder.....	24
3.2.4 Key findings from the case studies.....	26
3.4 SWOT-analysis.....	28
3.4.1 Strengths, Weaknesses, Opportunities and Threats.....	28
3.4.2 Synthesis of the SWOT analysis.....	31
4. Conclusion.....	32
4.1 Sub questions	32
4.2 Main question and advice	34
5. Discussion	36
References	37
Appendices	40

1. Introduction

Since the end of the Second World War, agriculture has gone through big changes in the Netherlands and in Western Europe in general. Farms have intensified, scaled up and mechanized, while the number of farmers dropped (Bieleman, 2010). With these changes, historical landscapes with small fields surrounded by natural fences disappeared and were replaced by large fields with



Figure 1: Location of the Maasheggen in the Netherlands. Source: Google Maps

barbed wire fences (Sklenicka, 2009; Baudry et al., 2000; Burel, 1996). However, in some places this historical landscape stood the test of time and small fields with hedgerows can still be observed. The Maasheggen is one of the last areas in the Netherlands that still contains old natural and cultural elements (“Maasheggen”, n.d.; figure 1).

It is characterized by grasslands that are surrounded by ancient hedgerows, which trace back to about 400 years ago (Buiteveld, 2016). Historically, the hedgerows were braided to create sturdy fences for livestock. This was done by cutting the stem to about three quarters of its depth and then bending it to create horizontal branches that continued growing. The result was a very compact, living hedgerow that serves as a fence to keep livestock within the fields (Baudry et al., 2000). The hedgerows were also used as a supply of construction- and convenience wood (Stichting Heg & Landschap, 2015). Because of the unique cultural and natural heritage values of the landscape, the Maasheggen area received the

UNESCO "Man and Biosphere" (MaB) status in July 2018 (box 1).

Box 1: Background information about the UNESCO Man and Biosphere programme

Since the second world war, the main goal of the United Nations Education, Scientific and Cultural Organisation (UNESCO) has been to contribute to peace and sustainable development through global projects on education, science and culture (UNESCO, 2019). In a globalising and polarising world, this mission is more relevant than ever. MaB was launched by UNESCO in 1971 as a scientific programme that is focused on improving the relationship between people and their environment (UNESCO, 2017, 1). Emphasising the relation between people and nature is important because they are often polarised too. For example, global climate change policy or schemes to protect biodiversity place ‘us’ outside of our environment as a steward with the power to change nature (Uggla, 2010). Another example is the Dutch spatial planning in which urban and natural space are usually harshly divided (Brink et al. 2006). Instead of separating man and nature, MaB considers nature and humans as partners that jointly shape the environment. Through an interdisciplinary approach including natural- and social sciences, education and economics, the UNESCO MaB programme aims to improve human livelihood and the equal distribution of an area’s benefits, while conserving natural and man-made ecosystems. They want to stimulate innovative economic development that is sustainable both for people and the planet. The network of MaB area currently covers 124 countries with a total of 701 areas, of which the Maasheggen is currently the only one in the Netherlands (UNESCO, 2017, 3).

However, even in the Maasheggen time has not stood still. Despite the confirmation that the MaB status gave to the importance of these grasslands surrounded by hedgerows (L. Olsthoorn, personal communication, October 31, 2019), the Maasheggen is still under threat. Three main challenges can be identified.

Firstly, the remaining hedgerows have lost their original use in modern agriculture, which has turned them into an entrepreneurial burden for farmers. The maintenance of the hedgerows is more expensive than placing iron fences and takes a lot of time as well (Sklenicka et al., 2009). Furthermore, the hedgerows hamper crop growth on the fields they surround, by casting shade and sucking up water (Costa et al., 2005). Also, the space that the hedgerows take up on the land cannot be used to grow crops and hedgerows can hamper practical accessibility of the fields. The hedgerows on farmlands are now legally protected, but new incentives are necessary to maintain the existing hedgerows and to restore hedgerows that were lost.

Another challenge is that the number and type of farmers that are active in the area is changing. New farmers are coming in from other areas, and some of them may not have the same inherited knowledge regarding hedgerow management (L. Olsthoorn, personal communication, October 31, 2019). These newcomers also potentially have a different connection to the landscape resulting in a lower motivation to take care of the hedgerows. Loss of knowledge about hedgerow management can be another threat related to the decrease in the number of farmers and the arrival of farmers from outside the area.

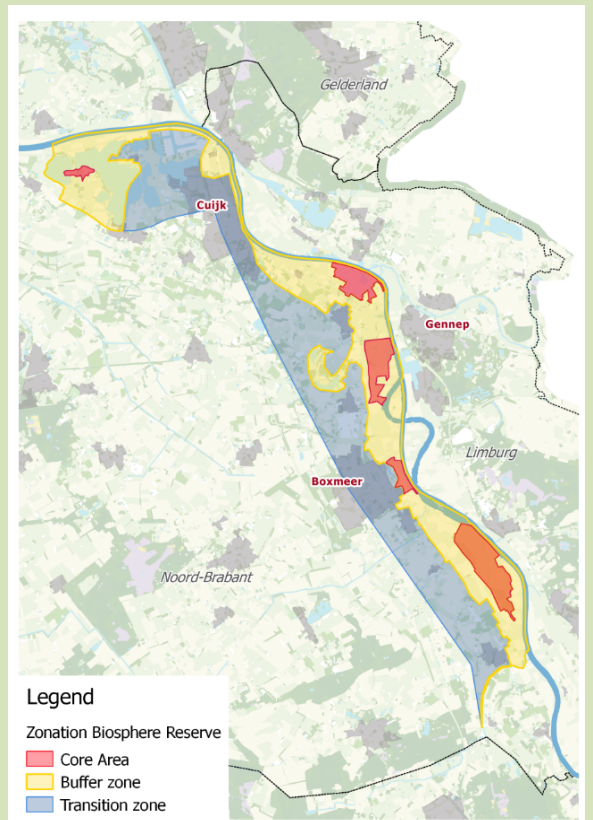
Last but not least, the governance of the area with mixed ownership of the fields and the many different stakeholders involved makes it difficult to govern and protect the landscape. Various managing parties with each their own priorities are active in the Maasheggen (Uitvoeringsprogramma, 2016). Nowadays, part of the remaining hedges is still owned and managed by farmers. Other hedges are owned by Staatsbosbeheer (the Dutch state forestry service), municipalities, small landowners, and organisations like Brabants Landschap (a province-level landscape management organisation). Many of these parties have bought land and hedges with nature conservation as a priority (Uitvoeringsprogramma, 2016). These different stakeholders all have their own ideas on how the hedgerows are supposed to be managed correctly and tend to communicate poorly (Uitvoeringsprogramma, 2016).

As an independent coordinating party, here defined as the programme bureau, aims to tackle the above-mentioned challenges. We define the programme bureau as the management of the core group (Uitvoeringsprogramma, 2016), which exists of two people from an independent advisory bureau called 'Over Morgen' and one employee of the province of Brabant. One of their strategies and one of the UNESCO requirements was to implement a zoning system (box 2). Especially in the buffer zone, they want to help the farmers to continue their occupation, while conserving and restoring the hedgerows. In other words, the aim of the programme bureau is to balance the cultural and ecological values of the landscape with economic viability for farming through local involvement, especially from the farmers. This brings about two main dimensions of their ambition: the strategies to manage the different values of the landscape, and the governance process that takes place to develop and execute these strategies.

Box 2: Maasheggen zonation system

In order to attain the MaB status, a zonation system was used, as shown in figure 2 (UNESCO, 2017, 2). The core areas are the areas where the cultural landscape is still present and where nature has space to develop. The buffer zone is the area where part of the hedges remains and where most of the farming activities take place. In the transition area, there is less focus on conservation and development of the historic landscape.

Figure 2: UNESCO MaB area the Maasheggen, with the core area in red, buffer zone in yellow and transition zone in blue (UNESCO, 2017 2)



The programme bureau Maasheggen assigned an Academic Consultancy Training project to Wageningen University. This research project aims to contribute to the overall goal of the programme bureau by identifying the perceptions of farmers towards farming in the Maasheggen and analysing the opportunities for farming in and the governance of the area. To be able to reach the above-mentioned aims, research questions have been formulated, in which the two main dimensions in the ambition of the programme bureau. The main question that is addressed in this study is:

“What actions can be undertaken by the programme bureau Maasheggen UNESCO to seize opportunities and to address challenges to reach their ambition to balance ecological and cultural values with economic viability for farmers (through a participative governance process) in the Maasheggen MaB area?”

Three sub questions are formulated:

- How do farmers of the Maasheggen MaB area perceive the management of ecological and cultural values of the landscape in relation to economically viable farming?
- How do farmers perceive the stakeholder communication and participation in the governance of the Maasheggen MaB area and what does this imply for their willingness to contribute to the ambitions in the Maasheggen MaB area?
- What can be learned from strategies for landscape management and process governance in comparable areas (with and without MaB status) to seize opportunities and overcome threats in the Maasheggen MaB area?

To address the research questions this report will exist of the following elements. An analytical framework and method are used to guide the gathering of data. The main line in the entire report will be the two landscape dimensions explained in this framework. The data will exist of semi-

structured interviews that were held with ten farmers and landowners in the Maasheggen area and a literature study of three comparable areas. Project managers from these areas were also contacted for additional information. These results are used as input for a SWOT analysis on the Maasheggen landscape. Based on this, a conclusion with an advice that contains proposed actions for the programme management is formulated. Besides this, a Dutch management advice is written to give a quick overview of this study and the advice that came out of it (appendix 3). The commissioner can use the advice as input for new ideas on how to work with farmers on above mentioned challenges, and as inspiration for new developments and innovations for the area.

2. Study design & methods

In this chapter, the analytical framework is outlined, the methods for the interviews and case studies are explained, and risks and limitations of our methods are mentioned.

2.1 Analytical framework

For the analytical framework, we build upon the Integrated Landscape Approach and SWOT analysis. Inspired by the landscape approach, two landscape dimensions with related concepts were identified to ensure a holistic view on the Maasheggen landscape. The landscape dimensions were used to guide and structure the analysis of the case studies and the results from the interviews. Key findings from this analysis were included in a SWOT analysis, which is a tool to identify how opportunities can be seized and how threats can be addressed. From the SWOT analysis, an advice is derived as a final product for the programme bureau.

2.1.1 Landscape dimensions

The Maasheggen MaB area can be seen as a multifunctional landscape, in which the programme bureau Maasheggen, together with stakeholders, is seeking ways to balance and develop the functions of the Maasheggen MaB area. To address challenges on a landscape scale, landscape approaches have been developed. In general, landscape approaches allow for *“a holistic view of the competing land-use interests and an understanding of inherent trade-offs within the system to better achieve multiple objectives.”* (Freeman et al., 2015, p.1). There is a wealth of scientific literature about landscape approaches, but clear definitions and practical applications are often lacking (Reed et al., 2015; Freeman et al., 2015). The clearest definition that was found is from Reed et al. (2015): *“Landscape approaches seek to address the increasingly complex and widespread environmental, social and political challenges that transcend traditional management boundaries”* (p. 2).

Freeman et al. (2015) have attempted to operationalise the Integrative Landscape Approach by identifying five core concepts of this approach, namely: Multifunctionality, transdisciplinarity, participation, complexity and sustainability. These concepts are not practically applicable for this project. They remained too abstract as it was not explained how they could be applied. However, the underlying idea of the Integrated Landscape Approach is a holistic approach to landscape, and that is relevant. Therefore, tailor-made concepts that we call ‘dimensions’ were used instead. These are based on the two dimensions of the ambitions for the Maasheggen area that were identified in the introduction. The strategies to manage the different values of the landscape, and the governance process that takes place to develop and execute these strategies.

The landscape itself, including all the management that takes place, is the ‘content-related’ dimension of the landscape. As mentioned, the aim of the Maasheggen programme bureau is to balance different functions/values of the landscape in a sustainable way. Inspired by the Triple Bottom Line (i.e. People, Planet, Profit; see e.g. Slaper & Hall, 2011), we chose to focus on the ecological, cultural and economic values of the landscape, because they are especially important in the Maasheggen and in the ambition of UNESCO MaB. Ecology refers to the nature in the area, such as the hedgerows, but also other flora and fauna. Culture refers to the cultural-historic values, which are also represented by the hedgerows. The economic value refers to the economic viability for farmers in the area. These three values are the driving forces in the management of the Maasheggen. By taking these three values into account in the analysis, a holistic view is ensured.

The second dimension is ‘process-related’ and is about how the management of the landscape is governed by the involved stakeholders. The concepts ‘stakeholder participation’ and ‘communication’ are used to describe this dimension, because they are the core themes for working with landscape management or planning (Steneske, 2009). Stakeholder participation is known as a common strategy to maintain or restore different values of a landscape, especially on a smaller scale (Steneske, 2009). In this project, stakeholder participation refers especially to how local farmers together with other stakeholders are involved in the processes of developing plans

and visions for the management of the Maasheggen. Communication refers to the extent of information provision by and the transparency of the Maasheggen Programme bureau to other stakeholders, but also the extent that these stakeholders feel listened to.

2.1.2 SWOT analysis

The landscape dimensions were used to guide and structure the analysis of the case studies and the results from the interviews. As a next step, key findings from this analysis were used to do a SWOT analysis. The distinction between the dimensions is continued to be used in the SWOT analysis.

SWOT stands for Strengths, Weaknesses, Opportunities and Threats. It is a strategic management tool, which allows an organisation, project etc. to be proactive rather than reactive in shaping their future (Gürel & Tat, 2017). SWOT analysis was originally developed as a management tool for enterprises, but recently it has also been applied in the area of nature conservation (e.g. Scolozzi et al., 2014). SWOT analyses focus both on internal factors (strengths & weaknesses) and external factors (opportunities & threats). With a high-quality SWOT analysis, an organisation can balance its internal strengths and weaknesses in relation to external opportunities and threats, to move towards the organisation's goal. In this project, this goal is the ambition of the Maasheggen programme bureau to balance the cultural and ecological values of the landscape with economic viability for farming through a participative governance process. For the internal factors, the key insights from the interviews were used. For the external factors, key insights from both the interviews and the cases were used. The main points from the SWOT analysis are summarised in a table (table 1 is a template).

The main limitations of a SWOT analysis are that it doesn't offer a prioritisation of findings and that there is no strategy or solutions offered (Kotler & Keller, 2009). Since the goal of this research project is to suggest action points for the programme bureau, these aspects were added in a synthesis after the SWOT analysis. In this synthesis, it is elaborated how strengths and weaknesses could be used to grasp opportunities and prevent threats. This serves as input for the action points that are shown in the conclusion chapter.

Internal Factors	
Strengths	Weaknesses
Content Process	Content Process

External Factors	
Opportunities	Threats
Content Process	Content Process

Table 1: SWOT template. Content-related concepts will be orange, process-related concepts blue.

2.2 Interview methodology

2.2.1 Semi structured interviews

The interviews had the purpose of gaining insights on how farmers perceive the management of ecological and cultural values of the landscape in relation to economically viable farming, and how they perceive the stakeholder communication and participation in the governance of the Maasheggen MaB area. We also asked them about (future) opportunities they see for themselves and the area. The interviews were semi-structured, because this method offers a balance between flexibility and structure (Kumar, 2009). The questions are prepared to make sure that relevant points are discussed, but the interviewees have an opportunity to share other thoughts and insights that arise during the interview as well. If an answer to a question was not satisfactory or complete for the interviewer, probing techniques such as the silence probe, repetition probe and

'tell me more' probe was used (Kumar, 2009). As proper probing is not easy, most interviews were conducted with two interviewers.

An interview script is used to guide the interviews (see appendix 1). The interview started with some explanation on the research project, the goal of the interview and how the data would be used. Permission was asked to audiotape the rest of the interview. The interview questions were formulated as open questions. The 'body' of the interview was divided into six topics. In order to gain insights in these topics, some main questions were formulated, accompanied by sub-questions or follow-up questions. It was ensured that there were questions about both landscape dimensions (content and process). First, some introductory questions were asked about the farm type and sources of income. The other topics were about the Man and Biosphere status, the values of the hedgerows and their management, parties that are involved in the landscape management, alternative business models, and general values of the landscape. For the topic on alternative business models, three examples of alternative agricultural practices were mentioned. The farmers were asked if they thought these business models were suitable for the Maasheggen area and whether they would be interested in it. These examples were inspired by the case studies and included short value chains with local products and the use of pruning waste or wood cuttings for heating.

The interviews were conducted at a place that the interviewee preferred, to make it comfortable and practical for the interviewee. Usually this was the interviewee's home or a local cafe. The language of the interviews was Dutch as this was their native language. The interviews lasted approximately 60 minutes. They were recorded on audiotape, and short notes were taken as well. The recorded interviews were worked out in a template (appendix 2). In the template it was also indicated which landscape dimension (e.g. natural, economic etc.) was represented in the answer of the interviewee. This template was created in order to subtract the most relevant information, without having to transcribe the whole interview. Interesting quotes were transcribed literally, but the majority was summarised. Based upon the templates, key insights from the interviews were extracted.

2.2.2 Sampling method

The interviewees that we were looking for were farmers who owned land in the Maasheggen area. To find interviewees, snowball sampling was used. Snowball sampling means that the interviewees are found because they were mentioned by other contacts (Kumar, 2019). Random sampling was not possible because there is no list of farmers in the area due to privacy reasons and the complexity of ownership in the Maasheggen. Moreover, the commissioner advised against approaching farmers directly, which meant that the academic team could only contact them through someone else. Therefore, Lars van Peij, the coordinator of the delta collective, was contacted. The delta collective is a farmers' collective for agri-environmental management in the Maasheggen. He had a contact list of farmers, which was used to establish initial contacts with farmers and plan interviews. During these interviews, snowball sampling was used again by asking the farmers if they knew other farmers who were not in the contact list and who would be open to an interview.

Due to feasibility reasons and the short timeframe of this project, the sampling size was set at 10 farmers. The aim was to have a sampling set with a variety in farm size, intensive and extensive farms, arable and livestock farms, conventional and organic farms and farmers who were 'very much' to 'not at all' involved in the management of the area. By having this variability in the data set, the goal was to get a good overview of the whole farming community in the area. These categories were based on an exploration of the area through communication with Lisa Olsthoorn from the programme bureau Maasheggen UNESCO and Lars van Peij from the delta collective. One farmer could fit into multiple categories. In the end, we interviewed 8 farmers and 2 landowners that did not have an agricultural business. For the sake of simplicity, all interviewees are referred to as 'farmers' in the remainder of the report. The interviewees were conventional, organic or nature area managers and managed lands with mixed amounts of hedges and different purposes

(crops, hay and cattle). Also, the amount of land that the farmers owned or managed varied from a few acres to about 200 acres, with different amounts within and outside of the Maasheggen. Some of the farmers had alternative income sources to support their company and some even had side jobs to sustain them. What bound all these farmers together was that they all owned land in the Maasheggen and that they owned hedges. It can thus be assumed that the interviewees represent a broad range of perspectives present in the area. However, it is still not completely sure how many farmers are located in the Maasheggen, so it's hard to estimate how our sample size relates to the total. We have heard of farmers that do not care for or that even remove hedges, but we did not manage to find and interview one of them. Therefore, the question remains who these farmers are and what their perspectives are.

2.3 Case study methodology

Data for the case studies was mainly collected through literature study. Search terms were *sustainable agriculture*, *nature inclusive agriculture*, *extensive agriculture*, *UNESCO Man and Biosphere*, and *hedgerow agriculture*. These terms were used in Google, Google Scholar and the WUR library database to find grey literature and peer-reviewed literature on agricultural areas that were comparable to the Maasheggen. Three cases were selected, namely the Rhön MaB area in Germany, the Devon MaB area in the United Kingdom, and the Ooijpolder in the Netherlands. As there are no other MaB areas in the Netherlands, the MaB areas were selected close to the Netherlands. The third case was an area in the Netherlands, because it falls under similar policy and governance regulations, for example for agri-environmental management. All three cases were selected with the requirement that the preservation and development of natural and cultural elements were combined with agricultural activities.

The analysis of the cases was guided by the landscape dimensions. In order to gain more in-depth information on the identified cases, the management teams of the areas were contacted by phone and/or email and we asked them some in-depth questions related to the management of the areas. For the Ooijpolder we received answers to our questions, but for the Rhön and Devon area we did not succeed due to time constraints. From the analysis, key insights were extracted that are useful for the Maasheggen area. Together with the key insights from the interviews, these were input for the SWOT analysis.

2.4 Guaranteeing validity and reliability

The interview method is quite reliable because the interviews are recorded, which leaves no room for interpretation of the researcher. However, interview techniques have different kinds of bias risks that negatively influence the measurement validity and internal validity (Kumar, 2009). To prevent bias as much as possible, triangulation was applied. Triangulation means that different methods or sources are used to prevent weaknesses of research like bias (Kumar, 2009). The combination of sources like interviews, literature research and information from the commissioner can strengthen the validity of this study. Three important risks are discussed below.

An important risk of the interview method is that interviewees can influence the interview outcome actively by steering towards a goal they have. Their perceptions can be biased by their surroundings, interpretations and prejudices. To alleviate this weakness, triangulation of sources was applied. By paying attention to the different categories of farms when reaching out to the farmers, interviewing a broad group of research subjects was ensured which, according to the experts in the area, represent the majority of perspectives in the area. Also, as our initial contact in the area is a member of the delta collective, all the farmers that were contacted could have a comparable bias. To prevent this, we also interviewed farmers that were not part of the delta collective. However, since only 10 farmers were interviewed, there is still a chance that not all perspectives were included in the interviews. Therefore, the validity is still limited.

Secondly, we as researchers could also be biased and therefore have different interpretations of the interview answers. For example, as many of us work in the field of nature conservation, we

might have a preference towards natural values, which could influence our interpretations of the farmers' answers. To prevent misinterpretation, the interview guide was developed by team members with varying study backgrounds, and for most of the interviews, there were two interviewers. This is part of source triangulation.

For the literature research, it should be kept in mind that certain sources might be biased. For example, tourist information on a specific area will be very positive as the goal is to sell a tourist experience. To avoid bias as much as possible, triangulation was applied by using different sources for each case and including as many scientific sources as possible. Grey literature, like websites and policy documents are used to extend the amount of available data. Note that this kind of literature is not peer-reviewed and can thus be more biased.

3. Results

In this chapter, the results from both the interviews and the case studies are presented. Then, they are used to conduct a SWOT analysis. Firstly, the interviews and the information gathered from them are discussed. Then, the three case studies are introduced. Specific reasons for choosing these areas can be found in the case results. From these case studies, lessons and strategies that might be useful for the management of the Maasheggen are distilled.

3.1 Interview results

3.1.1 Balancing natural and cultural values with economic viability for farmers

Due to the broad range of farmers that were interviewed, different perspectives were identified on the values of the landscape and the farm within this landscape. Almost all of the interviewed farmers thought that the agricultural activities were the most important element of the landscape. Farmers once created the Maasheggen landscape and they have preserved it for centuries. There is a sense of pride and responsibility for the elements that make up this landscape (*"I feel like being a 'good' farmer means maintaining the hedges"*).

Perceptions on hedges & hedgerow management

There is a range of perspectives on hedgerow management. Different landowners manage their hedges in different ways. This is normal and also gives the landscape a diverse range of hedges from short-cut hedges, to braided hedges, to thicket hedges and even neglected hedges. There is no clear historical reference for the correct type or size of the hedgerows and even with a set time reference, there would be debates between what kind of management the hedges need. Maintaining all hedges by hand is not feasible nowadays due to the huge amount of effort and time needed, so machinery is used in most parts of the Maasheggen. The hedgerows are protected, but the €700, - fine for removing them is not excessively high and under some circumstances, it is legally allowed to remove some plants as long as this is compensated elsewhere.

Hedgerow sizes in the Maasheggen vary from 80 centimeters to 170 centimeters high and from very narrow to very wide. The two extremes of this range are on the one hand short-cut hedges which are kept short and neat and on the other hand high and wide thicket hedges with a lot of plant- and animal species and a lot of flowers in spring. Farmers with short-cut hedges think that the thicket hedges are not historically accurate (referring to e.g. the 1940's) and that they look sloppy. Some hedges also need to be short due to the flooding of the Maas and the deposition of sludge on the land. Another point of attention for these farmers is the species forming the hedges: only the hawthorn and blackthorn were historically used. However, blackthorn is a fast grower and needs to be kept on a short leash to prevent it from overtaking and killing the hawthorn. The thicket hedges have a bigger ecological value. They are important habitats and corridors for birds, small mammals and plants. Supporters of thicket hedges believe that the historically accurate hedge is quite high and broad. They also think that cultural and natural values can be combined. The general dilemma is, as one farmer phrased it: *"What are the hedges for? For people to look around? Or do we think of nature? Which way do we want to go?"*. What kinds of hedges are wanted in the area? Is it a perfectly historically correct hedge or a natural one, and what is a natural hedge anyway? This is not only a question for central management but also for individual farmers and it is a returning point of discussion.

Farmers in the Maasheggen can choose to manage the hedges on their own or let management be done through a collective. If they do it themselves, they cannot get a subsidy from ANLb (agricultural nature- and landscape management, a Dutch national policy) and are thus not compensated. One thing all farmers agreed on is that they want a fair compensation for the hedges on their land. Opinions still vary on what 'fair' entails and whether the hedges should be considered as a source of income or a crop, or not. One possibility for a fair compensation,

mentioned by several farmers, was to determine the amount of financial compensation based on how well the hedges were maintained. In this way, farmers (or other stakeholders) that maintained their hedges well and according to plan would get a higher compensation than those doing a sloppy job, and this would stimulate the preservation of healthy hedgerows. The compensation should also be high enough to compensate for the financial losses caused by the hedgerows (through shading, taking up space, and standing in the way of big trailers and equipment); the costs of the hedgerows are not only related to maintenance. At the moment, some farmers are happy that the hedgerows are legally protected, but others see this as the reason that the financial compensation can be too low (the subsidies can be too low without consequences for the persistence of the hedgerows, because the hedgerows are protected anyway).

The farmers that maintain their own hedgerows, without subsidies, believe that it is part of their autonomy as landowner to decide what happens with the hedges and in what ways. *"You lose control over your own lands"*, if you join the agricultural nature management collective. These farmers feel that because of their direct connection to the land, management happens well and efficiently. Many of these farmers feel like some other managing parties do a sloppy job and neglect their hedges, and that they do not consider the bigger picture in their actions (e.g. they will come in with big machinery when the soil is wet, thereby destroying the fields, or they will create thicket hedges in unsuitable places).

When the farmers arrange management collectively, the value of the assignment exceeds a threshold set by the European Union, which means that it needs to be publicly procured ("European Commission", n.d.). Everyone can give an offer to the tender or procurement and the best offer receives the assignment. One of these collectives for subsidies is the delta collective. This is a cooperation of farmers and the Association for Dutch Cultural Landscapes (VNC). However, the majority of the farmers interviewed who were members of the delta collective still had mixed feelings about it. Many farmers believe that the share VNC/delta collective gets for the hedgerow management is too large and that their own share does not compensate for the financial discomforts that the hedges create (water usage and shading). A minority of the farmers believe that the association has the best interest in nature and culture and does a nice job for maintenance.

Some of the farmers we interviewed highly valued the natural elements in the Maasheggen and conservation efforts for these elements. One or two even contributed actively to this restoration. These farmers also found it a shame when the grasslands adjacent to the hedges were plowed to create fields to grow crops. However, other farmers in the Maasheggen believe that nature conservation and restoration has gone too far. They mentioned the, in their eyes, futile attempts to impoverish the soil by management organisation Staatsbosbeheer, which leads to fields with a lot of weeds. Another example was the continuously subsidised conservation efforts for badgers, which are already doing well in the area and are even becoming a nuisance to some arable farmers.

Perceptions on economically viable farming

The number of farmers has been decreasing, also in the Maasheggen. This is partially because it is hard to compete in world markets in a landscape that also has to consider cultural and natural values. In order to explore alternatives, we presented the farmers with three cases for alternative business models, to ask their first reaction to these cases.

- **Local products:** Some of the farmers found the case with local fruit very feasible and interesting. These were mainly farmers that already explored organic or alternative business models. The benefit of marketing local products is that initiatives like these have a low threshold for participation. Possibilities like meat, liquor, beer and tea (which are already made) were mentioned. Many however said that starting something like this up would take a lot of effort, as there are still so little local products. Moreover, it was mentioned very often that the scale of this solution would be very small, and it was doubtful to what extent it would be profitable. Most farmers liked the idea, but not for themselves.

- **Biomass sale:** A few farmers mentioned exploring alternatives like this one already. There was an idea in the area of creating heat from composting organic material. However, hedge waste was very small and thus not very suitable for sale as biomass. There have sometimes been deals with external parties who took over this waste for free, so that was with the ambition to break even and not have the burden of cleaning up the cuttings. Farmers sometimes also choose to burn the waste and just be done with it. One farmer mentioned that previously, it wasn't allowed to burn the waste because of high levels of heavy metals in the wood, caused by the river pollution. A first step for further exploration would be to check whether the concentration of heavy metals in the wood is acceptable nowadays and whether the amount or quality is sufficient.
- **Ecotourism:** Many believe that the number of tourists has increased during the last few years and that it has the potential to increase even further. With this insight also came a warning that the Maasheggen is a small area, and tourism is only feasible on a small scale. The infrastructure is not right for large-scale tourism and the area needs to keep its small and local identity. Some farmers would be open for ecotourism, but others mainly want to be left alone by the tourists. Some farmers were more open to the idea of combining tourism with healthcare. Overall, farmers found it hard to see how they could benefit economically from tourism. For example, one farmer catered coffee to tourists, but this was a lot of work to do besides managing the farm, while it did not bring enough revenue to hire someone to do it for him.

Before conducting the interviews, our general impression was that farmers had to explore alternatives in order to keep a viable business in the Maasheggen. However, most farmers said they would probably continue conventional farming and they were not necessarily interested in exploring alternative business models. Some farmers even thought that the farmers that do explore alternative business models (such as organic farming or side activities) will not have an economically viable farm and that therefore, their farms won't persist in the long run. The more moderate perspective is that there can be interesting business models in local or organic produce for at least a few of the farmers in the area. However, it has to be kept in mind that the area itself is pretty small so the market would quickly become saturated.

3.1.2 Communication and stakeholder participation processes

Communication can be hard in an area with many different landowners and stakeholders, as is the case in the Maasheggen. Many of the farmers interviewed had a strong opinion on how they are being informed and involved now as opposed to how they would like to see it.

The MaB status

Many farmers felt like they were not properly informed on the MaB status the area received. During the interviews, some still didn't know exactly what it entailed. According to them, they have a right to know what is going on in the area and close to their fields. The farmers that were aware of the status saw it as an acknowledgement of the value of the land, and some even felt honoured. Some thought the status had no added value, as the farming practices and surroundings remained the same. For most of the farmers, the status didn't change anything so far. This hedgerow landscape was there as long as they could remember, and the hedges would be there with or without the UNESCO status. Some saw it as a potential for subsidies. Another perspective was that the status brought opportunities to bring different perspectives together and create mutual understanding.

There was a fear that the status might bring in external parties looking for money. That tourism would increase drastically and that local values would be exploited. Another fear was that the area would become a nature area with no place for farmers, or at least that there would be more restrictions in the future. It was also said that governance in the area was happening from too far away and that unnecessary jobs were being created. Some locals felt like they would do a better job in managing the area themselves. For example, many farmers could not understand why large-

scale clay mining is still allowed under the UNESCO MaB status. They expected a clearer and more consistent management of the area, which would also benefit the hedges.

The programme bureau

There were many farmers that did not really know the programme bureau, or they knew it under a different name or only some of its members. The farmers that did know the bureau mostly thought that its purpose was to keep the area liveable and the local values present. However, many thought that that purpose was not being worked on properly. Either they thought the programme bureau did nothing at all or they thought they worked with a lack of care and long-term vision.

Some of the farmers would like to be more involved in decision making and others not so much because they felt less connected to the area (farmers that work more around the borders of the Maasheggen). However, all farmers that were interviewed would like to be informed about what is going on in the area, and they expressed a wish for the managers and decision-makers to be more local or to know more about local perspectives.

Other stakeholders in the area

Several other stakeholders that were relevant to the farmers and their businesses were identified in the interviews. It is important to note that the farmers in the area value the local connections and perceive this as a good way to accomplish things. This is partially because the area has been managed by locals for centuries. The most important formal cooperatives that interact with the farmers, besides the programme bureau, are highlighted below:

- **Vereniging Nederlands Cultuurlandschap (VNC):** The Association for Dutch Cultural landscapes (VNC) is an owner of part of the land and one hedgerow management party. They have a lot of the hedgerow management tenders, causing some frustration with some of the farmers and relief with others. The main point of concern for the farmers is that VNC is an external party that is not 'local' enough to understand the Maasheggen and its people. Some farmers believe that local parties would be more suitable for more detailed, proper and direct management.
- **Collectief Deltaplan Landschap or 'deltacollectief':** The deltacollectief (delta collective) was already mentioned regarding hedgerow management. This collective was initiated by VNC and two other parties. It is an agricultural nature management collective where farmers get together to manage the hedges collectively. By doing so, they receive a subsidy from the ANLb. This year, the tender or procurement they created went to VNC, which is also part of the collective management. According to the farmers, VNC receives €1,70 per meter of hedgerows. This money is mainly reserved for maintenance costs. Approximately €0,30 per meter goes to the farmers. According to them, this was not enough compensation for the negative effects of the hedgerows on their crops or grass. Another remark from many of the interviewed farmers was that the delta collective is not a true farmers' collective, since not all its members are active farmers. Many interviewees thought that too much money was lost in the delta collective, while it should be spent on the hedges and their owners. Another point to be noted was that delta collective does not have enough 'feeling' for the area, and that they stick to their planning instead of considering the weather and soil conditions before they go into the fields.
- **ANV Groen Boxmeer:** The local agricultural nature association (ANV) called Groen Boxmeer is one of the organisations in which farmers get together to learn about landscape and nature development and the fitting subsidies. Many interviewees felt as if the delta collective took away the role of the local ANV. However, this association has also been considered unprofessional by some other interviewees.
- **Groen Ontwikkelingsfonds Brabant (GOB) - land trading:** The Green Development Fund Boxmeer (GOB) has been using land trading ('ruilverkaveling' in Dutch) to create green core areas in the Maasheggen with a lot of well-managed hedgerows. Farmers have mentioned that

the puzzle of the landscape that the GOB sees and tries to solve is too large and complex. It would be better to start on a smaller scale and make choices, otherwise no land trade will happen at all. Many were open to land trading.

- **Stichting Landschapsbeheer Boxmeer (SLaBox):** The Foundation for Landscape management in Boxmeer (SLaBox) exists of multiple volunteer groups and works on restoring the hedges and cultural elements in the Maasheggen landscape. They also organise the annual Dutch hedge braiding contest. Most farmers thought it was a nice initiative, as long as it would not limit their farming practice. They also think it is important to braid hedges in places where visitors can actually see them, and to maintain these braided hedges properly.
- **Staatsbosbeheer (State forestry services):** The Dutch state forestry services own land in the Maasheggen area and maintain the hedgerows on this land. Some farmers thought that the state forestry was sloppy in the maintenance, while others said that this was caused by a lack of money in previous years and not a lack of motivation.

3.1.3 Key findings interviews

Most farmers we interviewed felt a strong connection to the Maasheggen area and they were proud to be farming there. The perspectives on hedges, their management and on economically viable farming varied widely. However, some general messages can be identified. It is hard to determine which type of hedgerow is the historically correct one, so it is important to make deliberate decisions based on the needs and desires for a specific stretch of hedgerows. When it comes to hedgerow maintenance, there is a wish for more flexibility and an option for farmers to manage their own hedges, although some farmers appreciated that other parties like the delta collective maintain the hedgerows. The farmers also want a fair compensation for the burden the hedgerows impose on their business, due to maintenance as well as lower crop yields. When it comes to alternative business models, these might be an opportunity for some farmers, but definitely not all of them. Burning wood from the hedgerows for fuel could be interesting, provided that the wood is not contaminated with heavy metals.

All farmers we interviewed would like to receive information on what is going on in the area, but not everyone wishes to be actively involved. Many felt excluded from the management of the Maasheggen, which seems to be decided on through a top-down process, while it was exactly these farmers' ancestors who created the area in the first place. There is room for improvement when it comes to communication with farmers, but the farmers also noticed a lack of communication between the different organisations in the area. Consistency and transparency are needed to win the farmers' trust. There is strong social capital in the area, which could be used to benefit its management.

3.2 Case studies

Besides the interviews, a literature review was conducted on three European areas. Two of these have the MaB status and one does not, but it is situated in the Netherlands and therefore faces the same rules and regulations as the Maasheggen. These areas are the Rhön Biosphere Reserve, the North Devon Biosphere Reserve and last but not least the Ooijpolder area in the Netherlands.

3.2.1 Rhön MaB area

The Rhön area is located in central Germany in the area where the Federal States of Hesse, Bavaria and Thuringia come together (fig. 3). What makes the Rhön area particularly interesting as a case study, is that it has had the UNESCO Man and Biosphere status since 1991 ("Rhön Region" n.d.). This provides us with an opportunity to gain some inspiring insights on how to successfully manage an MaB area in the long term. It is one of Germany's 14 biosphere reserves and covers an area of 1850 km² (Pokorny, 2006). Rhön is an area with cultural landscapes famous for their rich biodiversity, which is the result of a long period of extensive agricultural activity (Kinickel, 2001 as cited in Kraus et. al , 2014), just like in the Maasheggen. Rhön is a low mountainous area with rolling hills and highlands and the climate is both sub-continental and sub-oceanic (Pokorny,

2006). Human activities including low impact agriculture and forest management were present in the area since the 9th century.

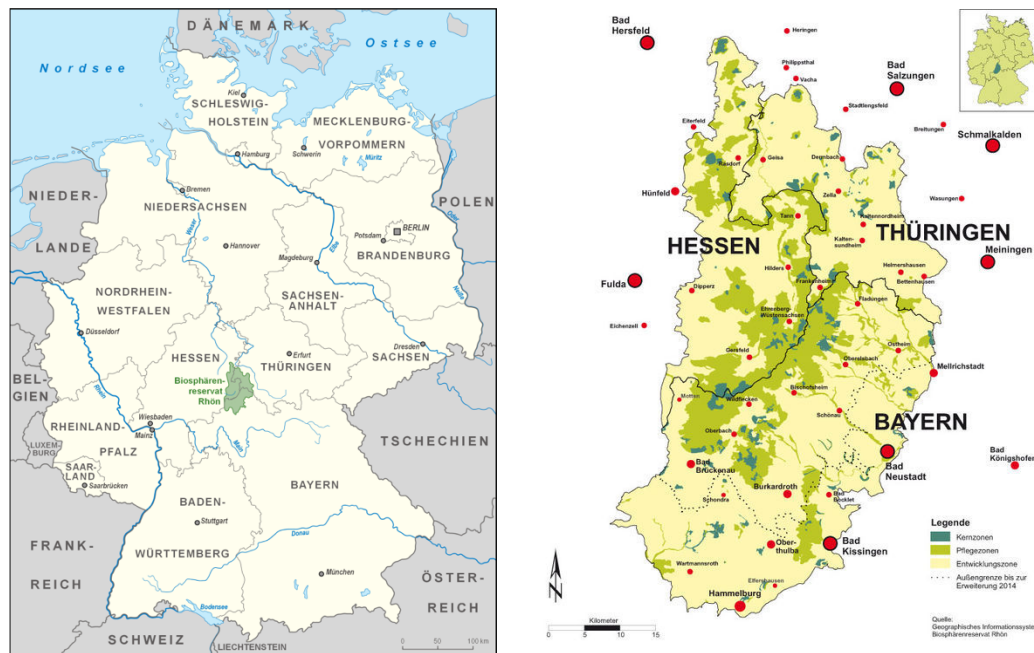


Fig. 3: Left: Location of the Rhön Man and Biosphere area in Germany. Source: https://en.wikipedia.org/wiki/Rh%C3%B6n_Biosphere_Reserve. Right: Rhön zoning system. Source: <https://biosphaerenreservat-rhoen.de/zonierung>

Balancing natural and cultural values with economic viability for farming

Nature conservation has always been an important aspect for the Rhön area management. In order to preserve the natural landscape of the Rhön area, the zoning system was applied according to UNESCO guidelines, linking conservation and development functions to specific areas within the biosphere reserve (Pokorny, 2006; fig. 3). Furthermore, some areas in the above-mentioned zoning system are protected nature reserves that are grazed and mowed like the traditional cultural landscape (Pokorny, 2006). Other parts of the area are still in agricultural use. As in the Maasheggen, agriculture in the Rhön area is one of the most important sources of income. However, land abandonment as a result of the agricultural decline since the 1980s has posed a threat to the integrity of the regional landscape and its biodiversity, which particularly depends on extensive grassland management (Cuong et al., 2017; Pokorny, 2006). Intensification of farming could be an economic remedy for the farmers, but it would alter the ecosystem and probably destroy both ecological and aesthetic values of the landscape (Pokorny, 2006). Intensification would probably also affect tourism in the area, which is connected to the beauty of the landscape (Pokorny, 2006). The management of the area came up with two major ideas that would help to increase economic viability in the area.

As Pokorny (2006) mentions, firstly they decided to increase farmers' benefits from the area by strengthening local processing and direct marketing of regional products. Conservation and sustainable development activities were undertaken based on the principle "Conservation by utilization", which encourages preserving and using indigenous domestic livestock and crops under strong partnership between local producers and enterprises (Cuong et al., 2017). Some of the most characteristic products of the area are beef, Rhön sheep, traditional apple varieties from the Rhön area, Rhön brown trout, which is traditionally farm bred, and Rhön beech timber (Pokorny, 2006). Rhön is a successful example of adding value for local products and services through marketing using the biosphere brand at the regional level (Cuong et al., 2017). Tourism was the second pillar of the economic strengthening of the Rhön area.

Tourism had always been important for the area (Pokorny, 2006). To further stimulate this, the marketing strategy presents the Rhön area as a unified tourism destination, to attract new visitors and better cope with new demands and trends in tourism (Kraus et al., 2014). The management of Rhön also realised the connections between agriculture and ecotourism would add extra value to the area. Some of the most popular ecotourism activities are hiking, cycling through the regions' mountains and valleys, canoeing and swimming in the lakes and rivers, and winter sports ("Rhön Region", n.d.). Additionally, in the surrounding area there are 8 spa towns with hotels and thermal baths ("Rhön Region", n.d.).

Communication and stakeholder participation processes

Conservation goals in the Rhön area can only be reached by close cooperation between farmers, the nature conservation authorities, and the agricultural authorities which provide grant schemes and programmes for adaptive management (Pokorny, 2006). One of the challenges in the area was to involve all the stakeholders and the locals from three different states. Since the beginning of the process, according to Cuong et al. (2017), strong stakeholder engagement supported the formulation of good participatory governance in the Rhön area. Involvement of locals was crucial in this part, and professional stakeholder as well as locals took part in the discussions for the draft versions of the Management Framework (Pokorny, 2006). The most important goal, that was agreed upon by all stakeholders involved in the Rhön biosphere reserve, was the conservation of this cultural landscape with its high biodiversity of species and habitats for both people and nature (Pokorny, 2006). According to Pokorny (2006), the most important driving forces are the locals, who are proud of their region, have a strong regional identity and in-depth practical knowledge of the region and its peculiarities. This strong local driving force can also be identified in the Maasheggen, according to the interviews done for this project.

Pokorny (2006) also says that each biosphere reserve should design a tailored organisational structure that brings together both public responsibility and local initiative. In the Röhn area, strong commitment of government and stakeholders ensure the long-term finances and resources for Biosphere Reserve implementation (Cuong et al., 2017). There is also a trilateral advisory committee, consisting of local and outside experts who represent agriculture, tourism and industry. This committee advises the biosphere reserve administration units (Cuong et al., 2017). Every state has its own administrative agency. A legally binding requirement for cross-border responsibility and cooperation beyond administrative boundaries was formulated in 2002. This facilitated a Regional Working Group (ARGE Rhon) to coordinate biosphere activities with support from an Advisory Board, which consists of 12 representatives of district administrators, local stakeholders, NGO's and scientists (Cuong et al, 2017). The framework they created integrated different interests of conservation, agriculture, forestry, research and environmental education (Cuong et al., 2017).

The management of biosphere reserves requires a lot of cooperation between different stakeholders of the area. The implementation of the biosphere reserve goals depends on networks and cooperation on all levels, both horizontally and vertically (Pokorny, 2006). The Röhn area seems to have figured out the golden mean to make the above-mentioned ideas a success story. To support and improve the management even further, research plays also an important role in the Rhön area. Cuong et al. (2017) states that half of the German studies on biosphere reserves are conducted in Rhön and these studies support periodical reports about the biosphere reserves, which are used for adaptive learning and enhancing nature conservation and sustainable development.

3.2.2 North Devon MaB area

The North Devon MaB area is located in the south-west of England (fig. 4). This area is particularly interesting as a case study, because there are ancient hedgerows on agricultural lands, just like in the Maasheggen (Devon Hedges, 2011). Secondly, it has had the UNESCO Man and Biosphere status since 1976 (Cuong et al., 2017). Just like the Röhn case, this provides us with an opportunity to gain some inspiring insights on how to successfully manage an MaB area in the long term. North Devon has received the MaB status mainly because of its unique landscape, characterised by cultural heritage and a high species diversity. Like all the MaB areas, the North Devon area is divided into a core, a buffer and a transition zone (fig. 4). Important to note here is that, unlike the Maasheggen area, the North Devon MaB area is partly terrestrial and partly marine.

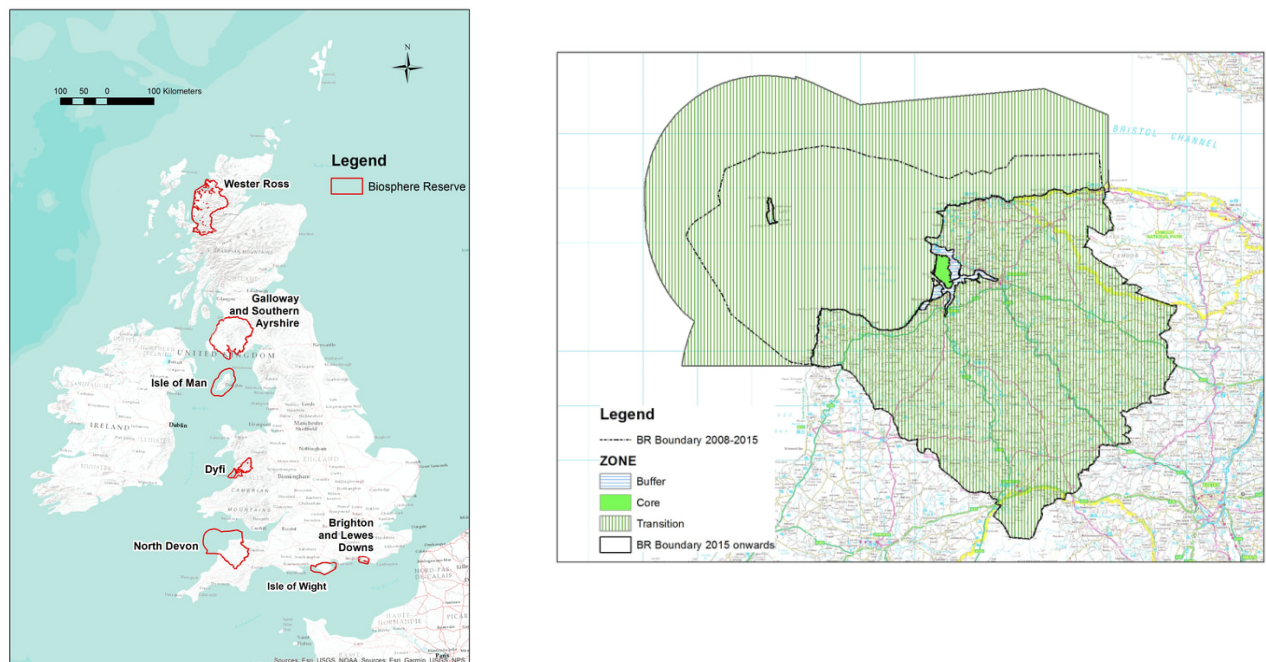


Figure 4. Left: Biosphere reserves in the United Kingdom. The North Devon area is located in the south-west. Source: <http://www.unesco-mab.org.uk/uk-reserves.html>. Right: Man and Biosphere area North Devon. The Branton Burrow area is the core area (in light green), the buffer zone (in blue lines) and the transition area (in green lines). Source: <http://www.unesco-mab.org.uk/north-devon-biosphere-reserve.html>.

Balancing natural and cultural values with economic viability for farming

The two most important aspects of heritage in the North Devon area are natural and cultural heritage (Howard & Pinder, 2003). Compared to the Maasheggen area, the ecology in the North Devon area is quite complicated since it is a combination of marine, coastal and terrestrial environments, leading to a high species richness in the area. There are also many protected species in the area (Bell et al., 2015). For the natural heritage, the main examples are Lundy Island and the Branton Burrows (of which the latter is the core area of the biosphere). North Devon area also has an exceptional cultural landscape with beautiful coastlines and a rocky foreshore, which are a habitat for many coastal species. Local residents who have a strong bond with this area developed coastal activities such as walking, sunbathing and fishing. These activities are considered to be part of the cultural heritage of the area (Howard & Pinder, 2003). Moreover, the hedges in the area are very unique and each part of the county has its distinctive type of hedge. Hedgerows are not only part of the farming activities in the area but also take a large part of the rural cultural heritage in the area with its high historical and educational value (Devon Hedges, 2019).

Under the management of the North Devon Biosphere, the habitat of the area did not degrade between 2002 and 2015 (North Devon Biosphere, 2013, 5). Contrarily, thanks to the series projects active in the area, many positive achievements were reached. For example, the project 'Working wetlands' driven by the Devon Wildlife Trust positively managed 240 county wildlife sites, made 3272 farm advisory site visits and improved 306 km of hedgerows between 2008 and 2013, which strongly helped the restoration of the Culm grassland (North Devon Biosphere, 2013, 5).

Although the nature management is going well, businesses in the area did not flourish as much as the ecology. There are many different businesses in the area, such as agriculture, fishery, tourism and industrial activities (North Devon Biosphere, 2013). Agriculture is the main source of income, especially livestock farming (Horlings & Kanemasu, 2010). Tourism is another major income in the North Devon area, which is taking a more and more important role in the development of the area. Tourism is mostly related to the natural environment of the area, especially on the coast side of the county (AONB, 2013). Other sources of income such as fisheries and industrial activities are also explored by the local people, but it contributes to their income much less than agriculture and the tourism industry. Despite the diverse entrepreneurial activities in the area, the average income of the people in the area is only three quarters of the average income in the United Kingdom ("North Devon Biosphere", n.d., 1).

For agriculture, the overall aim of the area is to increase the income of the farmers by developing the tourism industry in a sustainable way ("North Devon Biosphere", n.d., 2). Farmers in the area are facing problems such as the pressure to produce cheaply and aging of the population (Horlings & Kanemasu, 2010). Because of turmoil in the dairy sector, some farmers were forced to change their business to other livestock. Part of them also carry out "zero grazing" regimes in which cattle are kept inside. Nowadays, the income of the farmers is decreasing. Therefore, more support for the farmers is needed to be able to maintain the natural and cultural elements on their land (North Devon Biosphere, 2013, 5). Based on the literature, we couldn't find whether farmers in the area receive financial supports for agri-environmental management. In order to increase their income in a sustainable way, local food has been strongly promoted. Farmers up-scale their farming activities by processing their products into other forms such as juices or meat boxes. However, the income of the farmers is still not sufficient. Another strategy is that the Devon area tried to build a strong brand, but it didn't work out very successfully since it was mostly used in stand-alone adverts instead of creating an overarching storyline for the county. A lack of uniqueness was another weakness of the branding for the Devon area, because people's perspective on the Devon area is similar to that of other rural areas. Building a brand could be a good idea for the Maasheggen area which is representative for the area as long as everyone is included in the process.

Communication and stakeholder participation processes

To organise stakeholder participation, the North Devon Biosphere Reserve Partnership was set up. Local authorities, governments, business and academic support, local partnerships, charities, statutory bodies and volunteers are all involved in this partnership ("North Devon Biosphere", n.d., 3). In meetings, which are held one to three times a year, the Partnership takes decisions on the management of the area and reflects on the previous period. In the decision-making process, the partnership tends to reach a consensus. In case consensus cannot be reached, a voting system is used, and the decision will be taken when more than 40% of the voting members agree with it ("North Devon Biosphere", n.d., 3). The Partnership gives everyone the chance to share their opinion, including the farmers. It could also be valuable for the Maasheggen area to give farmers a chance to be more involved in the management of the area with a partnership.

In order to involve the farmers in the natural conservation of the area, the Taw Valley Facilitation Group was founded with 68 farming members signed up in which they can get advice and training on sustainable farming from the Countryside Stewardship Facilitation Fund ("North Devon

Biosphere”, n.d., 2). This strategy for knowledge dissemination might also be interesting for the Maasheggen.

3.2.3 Ooijpolder

The Ooijpolder is part of a Dutch landscape called Gelderse Poort. The Gelderse Poort is situated in Germany and The Netherlands, around the rivers Rhine and Waal (figure 5). In the areas that are close to the river, natural flooding dynamics have been restored, creating unique habitats for keystone species like the beaver and the otter (Berkhuis et al., 2005). Agricultural activities in the area are mostly situated in the Ooijpolder, which is 5000 acres large. Agriculture in the Ooijpolder mostly exists of cattle and sugar beet, maize, potatoes, wheat and fruit. These activities recently shifted towards more extensive agriculture and nature management. The main aim for the area is to let nature go hand in hand with economic and social development (Berkhuis et al., 2005). The Ooijpolder does not have a MaB status, but it is comparable to the Maasheggen area because it is a Dutch riverine landscape in which natural and cultural values are developed in an agricultural landscape.

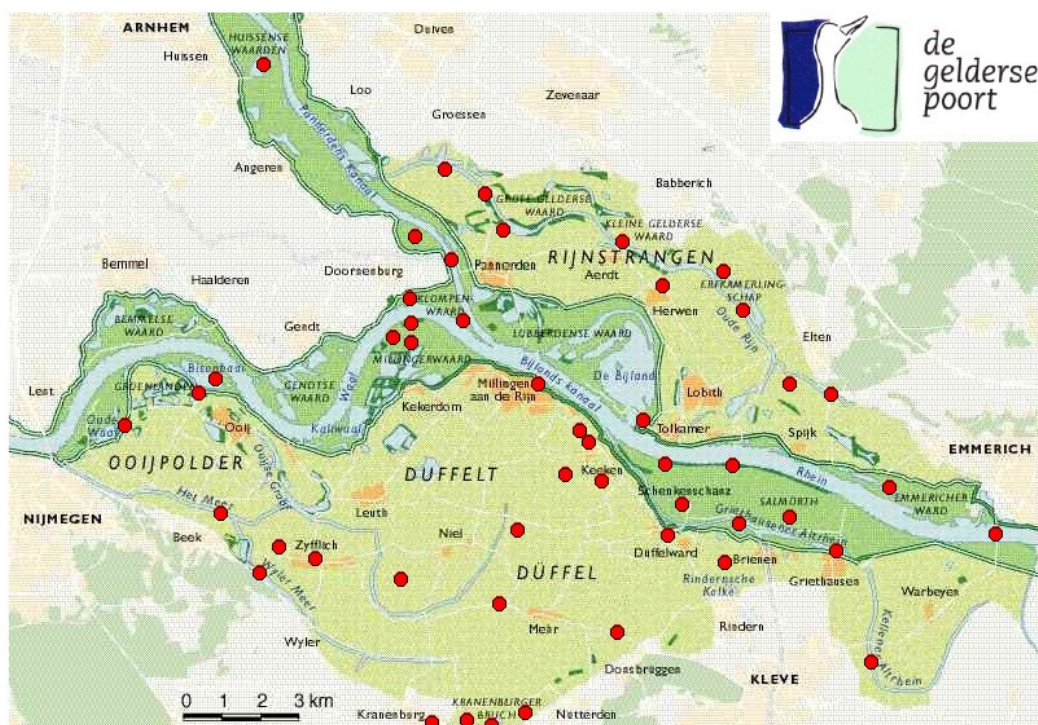


Figure 5: Map of Gelderse Poort. Source : http://members.chello.nl/he.vanhoek/maps/De_Gelderse_Poort-gans.jpg

Balancing natural and cultural values with economic viability for farming

The agricultural landscape of the Ooijpolder contains important natural and cultural elements, like the Maasheggen. There are hedgerows in the Ooijpolder that were built in ditches for water management. Riverbank walls ('oeverwallen' in Dutch) are also used for hedges to show the demarcation of fields (T. Wigman, personal communication, December 3, 2019). Nowadays that function is not as important anymore. The hedges maintained in the area show both similarities and differences with the Maasheggen area. The Maasheggen hedgerows and the Gelderse hedgerows are both mostly made out of hawthorn and blackthorn but the Gelderse hedge has other native species as well such as hornbeam and Gelderland rose ("Tenhoven-bomen", n.d.). The hedges serve as fences for cattle but also as roads for animal and plant species (Staatsbosbeheer, 2008).

Vereniging Nederlands Cultuurlandschap, the ANWB and Het Groene Woud, created (and got funding for) the 'Deltaplan voor het landschap' in which the ambition is described to make Dutch landscape 'pretty' again (Margry, 2017). Their definition of a pretty landscape includes landscape

elements such as hedges, puddles and other elements of structure. Therefore, the Ooijpolder is a pioneer in the Netherlands in restoring these elements on such a large scale. The main goal of the Ooijpolder management is to create a unique landscape of high quality both naturally and culturally, and to do this together with all the parties involved in the area. This landscape should then be inviting for visitors, nature lovers and locals (“Natura”, n.d.).

This ambition is challenged by changes in the farming community. There is a decreasing number of farmers (Berkhuis et al., 2005). This is probably an indication that conventional farming is not feasible any longer in the competitive global market (T. Wigman, , personal communication, December 3, 2019). Therefore, farmers have to make choices: intensify or find an alternative business model. Many farmers choose to sell out, which leads to land being bought by external parties who might not understand the landscape values the way locals do. Some of them use the land only to get rid of their excess manure, or they remove cultural elements to improve efficiency (T. Wigman, personal communication, December 3, 2019). Another challenge is there is a general lack of subsidies for green-blue (nature and water) services and these subsidies change with policy (T. Wigman, personal communication, December 3, 2019). Continuity is key and local farmers wanted to get a fair and stable compensation (“Dumont”, n.d.). However, government agencies are said to have difficulty to trust that putting a fund in an area leads automatically to achieving goals. Moreover, it is hard for these agencies to see green elements on private land as a public service (“Dumont”, n.d.).

To work on the ambitions and challenges, there are multiple projects that involve farmers. Firstly, a land reallocation plan in the area swapped agricultural lands close to the river to extensive and natural fields. Agriculture was proven to be less economically viable close to the river (Berkhuis et al., 2005). Plan Ooijevaar was created by the province of Gelderland to create space for nature close to rivers. Clay mining (combined with sand and gravel extraction and sale) was a new, or re-invented business model for the area. Nature managers cooperated to dig down the clay in the area and create room for the area while reserving clay and sand sales for nature management. The economic opportunity of re-introducing clay mining was that farmers could sell their fields and move to better lands (Berkhuis et al., 2005). These farmers moved to the areas behind the dykes. Farmers widely accepted this initiative, partly because they were moved to better lands (Aarsbergen, 2018). The mining of clay restores nature and further protects the land from the river flooding. The Maasheggen also has river management plans, but in contrast to the Ooijpolder, these are not widely accepted. The difference might be that the destination of the Ooijpolder is wetlands nature while the Maasheggen has a more cultural and agricultural destination.

Secondly, multifunctional farming is one of the initiatives explored in the Ooijpolder. This means that food production is combined with restoration of natural elements and tourism. Extensive and natural grazing is also explored, and local produce is sold from it. In a report about a sustainable economy for the Gelderse Poort, it is concluded that *“the sale of local produce may offer an alternative income for a handful of farmers, but certainly will not keep the agricultural economy running... Two farmers in the Gelderse Poort alone could provide the total supply of apple juice for the cities of Arnhem and Nijmegen!”* (Berkhuis et al., 2005, p.11). Thus, mixed and extensive farming initiatives can provide some source of income, but farmers remain largely dependent on the global economy (T. Wigman, , personal communication, December 3, 2019). Also, the grazers attract tourists that make up a new economically viable source (Berkhuis et al., 2005). The policy plan also has a focus on restaurants and catering businesses. The naming of the area and the restoration projects contributed to an increase of visitor attention and financial inflow in the area (Berkhuis et al., 2005).

Lastly, there are agri-environmental management schemes that are focused on natural and cultural landscape elements like hedges, shrubs and other flora. Kilometres of hedge and other elements have been restored over the past years. These hedges are maintained by the farmers that are compensated through contracts that are made for the coming 30 years (T. Wigman, , personal communication, December 3, 2019). These long-term contracts are unique in the Netherlands. The farmer maintains the hedges himself (or tasks others to do it) through this

compensation. Every 6 years, the quality of the hedges is checked. If hedges are maintained the wrong way, a farmer can get a warning and compensation can be held back. This result-based compensation is also an exception in the Netherlands (T. Wigman, personal communication, December 3, 2019). From the interviews, we learned that many farmers would prefer longer contracts and result-based compensation, so if such a system will be explored for the Maasheggen, the Ooijpolder can serve as an example.

Communication and stakeholder participation processes

There are many parties active in the area, but the foundation Via Natura is the main steering wheel. They are responsible for most of the projects and their funding (“Natura”, n.d.). Via Natura was set up by the municipalities of Groesbeek and Millingen to execute the regional Landscape Development Plan (LOP). They broker between projects and executors with management contracts and regular progress checks. By combining LOP plans with existing initiatives from for instance the water management authority (*waterschap* in Dutch), they are able to attract more funds (“Dumont”, n.d.). One of the advantages of the Ooijpolder was its increased funding due to the ‘Deltaplan voor het Landschap’, which chose this area as a testing ground.

Sometimes via Natura works out of its own initiative, which they can do because they are an independent foundation (T. Wigman, , personal communication, December 3, 2019). They have close cooperation with the municipalities and organise a stakeholder meeting three times per year and individual parties are involved often. Via Natura also has direct contact with farmers like farmer board members, the agrarian nature organisation or other farmers. Plans can sometimes take a while to be executed and the area is quite large, so it is hard to involve all the different stakeholders (T. Wigman, , personal communication, December 3, 2019).

The advantage of having the Foundation via Natura in the area is that it is an independent party, which means that prejudices between farmers and governmental organisations are surpassed and everyone clearly knows their intention. Moreover, the strength of small-scale management is shown. There is no big ‘umbrella’ structure needed to manage a landscape according to Ooijpolder organisation (Berkhuis et al., 2005). However, even though small scale management can be effective, it is still required to first discuss plans with stakeholders, like farmers before working them out and executing them (T. Wigman, personal communication, December 3, 2019). Another important note in management is that radical changes shouldn’t be downplayed. By consciously choosing to make trade-offs, stakeholders should stay motivated to innovate (Berkhuis et al., 2005).

3.2.4 Key findings from the case studies

From the case studies it became clear that managing a Man and Biosphere area, or any area where agriculture, cultural heritage and nature management come together, comes with challenges. Luckily, some strategies to take up this challenge can be identified as well. Compared to the three cases mentioned above, Maasheggen has a much smaller size. Therefore, we need to be careful when considering the applicability of strategies that are useful in other areas and note that there is no one-fit-for-all solution, but rather a creative and tailor-made solution has to be found for every new MaB area.

Balancing natural and cultural values with economic viability for farming

The Ooijpolder manages their hedges at a river floodplain, just like the Maasheggen, which can create conflicting interests between water, hedgerow and agricultural management. The Ooijpolder can be seen as an example for explicitly choosing wetland nature close to the floodplain, unlike the agricultural and floodplain destination in the Maasheggen. Also, for their execution, the farmers got the chance to trade land from close the river to better land behind the dykes, which satisfied the farmers and created support. At any rate, one can derive from the cases, especially the Ooijpolder, that clear choices need to be made for the destination of the landscape. This creates clarity and a goal to work towards.

In the Rhön area, short supply chains and branding of local products seems to be a success, but the area is a lot larger than the Maasheggen. Devon sells their produce to local schools, but it is not sure whether possible extra revenue goes to the farmers or other stakeholders. Ooijpolder has also identified some alternative business models with short value chains and local products, which are economically viable for some of the farmers. However, in the Ooijpolder they explicitly note that these alternatives are not for everyone, just like the farmers in the Maasheggen indicate.

For creating and executing a tourism plan for alternative income, Rhön can be seen as a success, and Ooijpolder and Devon as somewhere in between success and failure. Tourism is an important alternative income factor in the Rhön area, but again, this is a bigger area than the Maasheggen. From the Devon area, we learned that a good branding strategy is essential, especially in terms of a unique storyline. If the Maasheggen thus wants to explore further branding, it is important to formulate a brand in which everyone feels involved and included.

In the Rhön area, there is a legally binding requirement for cross-border responsibility and cooperation. Having such legal requirements is a powerful tool for managers. In the Maasheggen area, the MaB status has no such legal consequences. The hedgerows are protected, but this was already the case before the status was received, and the fine of 700 euros for removing hedges cannot be seen as a serious sanction. However, there are some cultural differences between Dutch and German nature management and the programme bureau would have to be very careful and deliberate if they want to consider pursuing further legal requirements for the Maasheggen area. We think it is important to know that this is done in at least other MaB areas, but we do not consider it as a realistic option for the Maasheggen.

Communication and stakeholder participation processes

A big part of the execution of above-mentioned points starts in organisation of the governance in the area. There are different ways to structure governance. In the North Devon area, local stakeholders built up a partnership in order to work together cooperatively, in which various professional teams are involved as well. Furthermore, the Ooijpolder used an alternative management scheme by creating an independent foundation as a steering wheel. This creates trust between stakeholders and manages to properly collect and distribute subsidies. The key, according to the Rhön area, is to create tailor-made solutions for each area together with the local community. Important is to involve stakeholders before creating plans. Stakeholders in this sense are not only the large players such as government institutions and collective associations, but also individuals, e.g. the farmers in the area. Communication plays an important role in this involvement and cooperation. In the Ooijpolder, there are regular meetings (3 times a year) where the various stakeholders come together. Here, all stakeholders were involved in stating the goals for the area. This creates a sense of involvement.

Closure

As it can be seen above, lines can already be drawn between the cases and the interviews. It is already evident that there are numerous different perspectives and factors that influence these perspectives. Themes can be identified, like the involvement of the local community, the possibility for local produce and many other aspects. Yet, these themes still need to be transformed into tangible actions to answer the main question. The next step is to synthesize all these results into a SWOT analysis which will be explained below. From that SWOT analysis, the final conclusions can be drawn.

3.4 SWOT-analysis

The key findings from the interviews and case studies are listed in the following SWOT analysis. The perspective taken in the SWOT is the ambition of the Maasheggen programme bureau to balance the cultural and ecological values of the landscape with economic viability for farming through a participative governance process. The key words mentioned in the table give an overview of all the strengths, weaknesses, opportunities and threats identified that are identified for this ambition (see table 2). These keywords are split into the two dimensions and are colour-coded to create a clear overview: Content-related keywords are shown in **orange** and process-related keywords are shown in **blue** (see paragraph 2.1.1 for an explanation of the dimensions). Each point from the table is explained below. After this explanation, a short synthesis explains how the internal and external factors can be synthesized to feasible action points.

Internal Factors	
Strengths	Weaknesses
<p>Connection to region and hedges Local knowledge on maintenance Coordinated maintenance hedgerows Positive perception MaB Enthusiasm Strong Social Contacts</p>	<p>Financial compensation No feasible business opportunities No positive result MaB status Incomprehension and mistrust Lack of participation Amount and diversity of stakeholders Transparency Communication</p>
External Factors	
Opportunities	Threats
<p>Branding UNESCO status Subsidies Alternative business models Tourism Land consolidation Agri-environmental management Cooperation</p>	<p>Intensification of agriculture practises Land owners from outside Nature policy Policy plan " Ruimte voor de rivier" Bureaucracy</p>

Table 2: SWOT analysis of the Maasheggen area.

3.4.1 Strengths, Weaknesses, Opportunities and Threats

Strengths

- **Connection to region and hedges:** Many farmers feel connected to the region and see maintaining the hedgerows as part of their lives (*"I feel like being a 'good' farmer means maintaining the hedges"*). Or at least, they find it important that the hedgerows are maintained adequately.
- **Local knowledge on hedgerow maintenance:** The farmers have lots of local knowledge on the landscape and hedgerow management in the area.
- **Coordinated Maintenance Hedgerows:** There are already quite some ways to manage hedgerows. Some farmers do it themselves or voluntarily while others work from the delta collective. Some farmers find the management adequate.
- **Positive perception MaB status:** The MaB status is generally perceived as an acknowledgement of the area and as an opportunity for extra subsidies for the conservation of hedgerows.

- **Enthusiasm:** There is a group of farmers (and some landowners) that are very enthusiastic about the Maasheggen landscape and that are (or want to be) involved with the management and the MaB status.
- **Strong social contacts:** The presence of strong social capital in the Maasheggen is evident. Many farmers have contact with each other and help each other. There are study groups, cooperation for hedgerow management, an ANV and many locals know each other directly.

Weaknesses

- **Financial compensation:** Most farmers think that if the hedges are of great value in this area, then the farmers should be compensated adequately for the negative consequences of those hedges (the soil, the pruning, the shade, etc.). They feel like this is not the case now. **Low feasibility business opportunities:** Many farmers do not see financial feasibility in alternative business opportunities like local produce or ecotourism while, others think these businesses are only feasible for a small group of farmers
- **No positive result MaB status:** Since the introduction of the MaB status, many farmers have seen no positive results and think that no action was undertaken to improve the situation in the Maasheggen area.
- **Incomprehension and mistrust:** There is incomprehension and mistrust between farmers themselves and other management organisations that deal with hedgerows. There are several reasons for this:
 - There are diverging perspectives on the historic form of the hedges and on management strategies. Some farmers think the hedgerows are managed by these organisations in a way that is not historically correct.
 - Some farmers think that these organisations manage the hedgerows in a sloppy way (some hedgerows are not managed, others are cut in a bad way, others are cut too often, etc.).
 - There is an idea that VNC took over the management for the money (and not to improve the quality or to help the farmers).
 - There is a lack of communication and deliberation between VNC and farmers from the delta collective (e.g. working with machines while the soil is wet, developing large hedgerows on a farmer's land while they used to be short, etc.)
- **Lack of participation:** Farmers that want to manage the hedgerows themselves cannot get (full) subsidy for it because it must go via a collective. They feel as if the management by the delta collective is forced upon them.
- **Amount and diversity of stakeholders and stakes:** The big number of landowners and stakeholders in the Maasheggen makes it hard to involve and inform every one of them.
- **Transparency:** Farmers lack knowledge on the long-term ambitions for the Maasheggen. Some farmers think the focus is too much on nature conservation and think that the goal is for farming activities to eventually disappear from the Maasheggen area. Others think that there will be more rules and restrictions for farmers in the future or that the plans are only short-term.
- **Communication:** Some farmers are not informed about the status and the goal of the UNESCO programme bureau. Farmers want to know what is going on and they want to feel like their perspective is heard by the programme bureau and policy makers.

Opportunities

- **Branding UNESCO status:** The UNESCO status brings opportunities to organise everything better on a landscape scale. The programme bureau can have a role in creating mutual understanding between different stakeholders.
- **Subsidies:** The Ooijpolder managed to bring in a lot of subsidies by promotion and communication. Maasheggen has the opportunity to do so too.
- **Alternative business models:** This is not for everyone, but some farmers can, on a small scale, explore these opportunities. The Rhön case also shows some success and Ooijpolder on a very small scale. This is probably only economically viable for a few farmers in the area. The rest will remain dependent on conventional farming and the global market.
- **Tourism:** One alternative business model could be found in tourism. Increasing numbers of tourists bring the opportunity to provide a few farmers with alternative sources of income, such as B&Bs, regional products or ecotourism.
- **Land consolidation:** Most farmers are open to the idea of land consolidation (*'ruilverkaveling'* in Dutch). This brings the opportunity to take the burden of the hedges away from the farmers, by maintaining the hedgerows for them or buying the hedgerows and the strips of land adjacent to it. Then the farmers can just be farmers and the hedgerow management would be done by professionals.
- **Alternative way of organising agri-environmental management:** Exploring and stimulating a new way of agri-environmental management in the area, that is compatible with the farmers' wishes, could be a great opportunity. The Ooijpolder case shows how to involve the farmers. Some farmers in the Maasheggen are open to having more nature-inclusive farming and planting more hedges (under certain circumstances). Creating an option of participatory management (involve/inform farmers) would give farmers more control over how their hedges are managed and by whom.
- **Cooperation:** The existing social contacts and groups in the area can be used by the programme bureau to get in contact with farmers. There are several organisations and farmer groups that could be approached.

Threats

- **Intensification of agriculture practices:** Global markets pressure farmers to intensify. The tearing of soils (plowing of grasslands), hedge removal, and fields being used almost exclusively for manure deposition are perceived as threats by some farmers.
- **Landowners from outside the region:** New landowners and farmers are coming in from outside and buying up land plots. These outsiders may feel less connected to the area and they have less knowledge about hedgerow management and less interest to be involved.
- **Too much focus on nature:** Focusing too much on nature/ecology in an agricultural area can lead to polarisation between farmers and nature managers. For example, increased grazing by wildlife means increasing destruction of crops.
- **Policy plan 'Ruimte voor de Rivier':** The Rijkswaterstaat and the river management plans stand in the way of hedgerow management. Nothing can be built in the riversides, not even hedges. The contradiction between this plan and the plans to maintain hedges creates confusion.
- **Bureaucracy:** Farmers perceive a lack in continuity in policy and policy measures and they feel like decisions are made from far away in an 'ivory tower'.

3.4.2 Synthesis of the SWOT analysis

In this synthesis, it is analysed how strengths can be used and weaknesses can be overcome to grasp opportunities and evade threats. This analysis will lead to the final conclusion and action points. Three main points are indicated here, of which the first two are related to all the landscape management, and the last one is related to how this management is governed.

First of all, the farmers see that the MaB status creates opportunities. However, many feel like these opportunities are not seized as they do not (yet) see results. So, results need to be reached and especially communicated, and the UNESCO brand can also be seen as an opportunity for the area to deliver results. To be able to form a clear vision, there is a need to make 'hard' decisions sometimes. A solution to achieving results is by using alternative business models for farmers in the area, but this opportunity is only possible for very few farmers in the area. Moreover, the different and contrasting perceptions (not only between farmers but also between hedgerow management plans and river management plans) make it hard to see what will happen with the area in the long run. These perceptions will probably remain, as the number of stakeholders will probably not change in the near future. So maybe, instead of fighting the diversity in perceptions, there is a way to celebrate the diversity and change it into a strength.

Secondly, the hedgerow management was an important topic, to which many strengths and weaknesses were related. Many farmers are now confused and frustrated by the way the agri-environmental management is organised. This could decrease their enthusiasm to work on the hedgerows. This has partly to do with the different perceptions on correct hedgerow management (i.e. that the current maintenance style gives a sloppy result, or that the thicket hedges are a nature policy and are not historically correct), but also with the feeling that the hedgerow management is taken away from the farmers. Another important point that comes forward when talking about hedgerow management is the financial aspect. Farmers want to be fairly compensated for their hedgerow management. The UNESCO brand might be an opportunity to bring in subsidies and farmers are open to the idea of land consolidation and alternative arrangements of agri-environmental management. The Ooijpolder case also gave some ideas to organise the agri-environmental management in a different way.

Lastly, it is striking to see that most of the process-related elements of the SWOT analysis can be found in the 'weakness' corner. This means that a lot can be improved and that many farmers still perceive the governance process as inadequate. All of the farmers mentioned that they wanted to be informed, which could improve communication and transparency. This can also be the first step to improve participation. Ways should be explored to work with a large number of stakeholders in a way that is fitting.

4. Conclusion

4.1 Sub questions

At the start of this consultancy project, we formulated one main question and three sub-questions to guide us towards an advice for the (management of) Maasheggen area. After conducting ten in-depth interviews with local farmers and landowners and studying three case studies, a SWOT analysis was conducted to give insight into the strengths, weaknesses, threats and opportunities for the Maasheggen area. Below, we answer the sub-questions, in which the main lines are still content and process, which thereafter lead towards the answer of the main question, which is an advice for the Maasheggen programme bureau.

How do farmers of the Maasheggen MaB area perceive the management of ecological and cultural values of the landscape in relation to economically viable farming?

- Most farmers indicated that they do not see the direction that the management of the Maasheggen is going. Firstly, many of the interviewed farmers saw nature management as an opposite of farming and some thought that nature management in the Maasheggen is going too far, which threatens the Maasheggen. They thought the natural side of the area was nice and some also noticed and noted the decline or increase of specific species, so it is definitely not something they ignore. However, very few farmers saw nature as being economically beneficial. Moreover, farmers find it confusing that the ambitions of the MaB contradict the ambitions of the river management plans. Alleviating confusions and misperceptions is important in creating support.
- Most farmers feel connected to the hedgerows in the Maasheggen and on their lands, which is a strength of the Maasheggen. However, they also see the hedges as a burden, because they need maintenance and they hamper crop growth. They want to conserve the hedgerows and maintain them properly, but they also want to see a fair compensation for this. Fair in this sense means that it is result-based and also compensates for the negative consequences that hedges have on crops or land. This is a very important point important to the farmers.
- The thoughts about what exactly is cultural heritage in the Maasheggen varied. Almost all farmers regarded the hedgerows as cultural heritage, but some also regarded the farms & farmers in the area as heritage, since farmers are the pivot of the Maasheggen landscape. Some others mentioned historical buildings, such as an old monastery, as cultural heritage. However, here again, farmers didn't see how cultural heritage could influence their business or even benefit it.
- Most of the farmers only see alternative business models such as local produce and ecotourism as only beneficial to a small group of farmers in the area. A lot of farmers do not see themselves changing their business model and some even see the farmers that do so as not likely to keep up financially.

How do farmers perceive the stakeholder communication and participation in the governance of the Maasheggen MaB area and what does this imply for their willingness to contribute to the ambitions in the Maasheggen MaB area?

- Communication and participation seem to be a weakness of the area. Many farmers felt excluded from the management of the area and also, felt like they did not know what was going on. Some farmers wanted to be actively involved in making management plans and policies, while others thought it was alright to have a top-down management approach as long as they would be informed, e.g. through a newsletter.
- According to most of the farmers, many different stakeholders seem to be working in parallel, each with their own priorities and goals, which often contradict the priorities and

goals of other organisations. The farmers had the impression that all these different actors in the area did not communicate enough with each other or with the farmers.

What can be learned from strategies for landscape management and process governance in comparable areas (with and without MaB status) to seize opportunities and overcome threats in the Maasheggen MaB area?

Balancing ecological and cultural values with economic viability for farming

- In the Ooijpolder, one of the success factors is that they developed plans in which a clear direction was envisioned. For example, they decided to create wetlands nature with clay mining in the floodplains and move agriculture behind the dykes. Sometimes this means that things have to change radically, and unpopular decisions have to be made, e.g. deciding that intensive conventional farming does not have a future in a landscape in which cultural and natural elements are important. They did not try to create a win-win situation but recognised trade-offs and chose them, while in the Maasheggen, both the river Plan and the MaB plan concern the same area and sometimes contradict. This is confusing to farmers and managers. A clear vision is also important for proper branding. In Devon, the lack of a unique storyline with ambitions for the future of the area was considered to be one of the reasons for the failure of the regional branding.
- Different agri-environmental policies can be explored to learn about hedgerow management. The alternative agri-environmental management schemes in the Ooijpolder (with 30-year-contracts, an independent involved party and result-based compensation payments) so far resulted in increased continuity in the management of natural and cultural elements and improved trust and relations between farmers and government organisations. A threat for the Maasheggen could be that there is too little financial compensation available. For parts of an area that need even more extensive agricultural management, land reallocation could be a better solution than agri-environmental management. Again, in this case, sufficient financial means are essential. In Devon, the agri-environmental management was organised professionally by the Devon Hedge Group. This had led to good ecological quality of the hedgerows, but it does not seem to have helped the financial situation of the farmers.
- Alternative business models with short value chains and local products are only economically viable for few farmers in an area like the Ooijpolder. The rest of the farmers will remain dependent on the global market. In Rhön they managed to link agricultural production to selling of regional products and ecotourism, but maybe this was successful because the area is much larger. The same goes for ecotourism in general, which is only possible for a few people, especially in such a small area like the Maasheggen. It also remains unclear how much the local farmers earn with this. In Devon, there is a lot of regional produce that is sold to schools etc., but the farmers are still poor. This leads us to the idea that the success of alternative business models might also depend on the success of the branding of the region. If this is true, then it is important that the branding provides an overarching story in which farming has its place. This story should not only celebrate the past, but also the present-day dynamics and innovation.

Stakeholder involvement and communication

- From the Rhön case we learned that strong stakeholder participation and communication, as well as involvement of locals, was a key success factor in developing ambitions for the area and for working on them. This involvement was already there from an early stage of making plans, since locals were involved in the MaB application.
- From the Ooijpolder case, we learned that regular meetings (e.g. 3 times a year) could provide a stable basis for the exchange of worries, ideas and initiatives between different stakeholders.

4.2 Main question and advice

The main question we meant to address in this report, was: *“What actions can be undertaken by the programme bureau Maasheggen UNESCO to seize opportunities and to address challenges (through communication and stakeholder participation) to balance ecological and cultural values with economic viability for farmers in the Maasheggen MaB area?”* Based on the SWOT analysis, three main themes were identified on which we want to give some advice and propose some action points. The first two themes are about the ‘content-related’ dimension of the landscape (i.e. how to balance ecological and cultural values with economic viability for farming). The last theme is about the process-related dimension of the landscape. For each theme, the action points are sorted from high to low priority according to our team.

Create a long-term plan & build a brand

One of the first steps for the Programme Bureau Maasheggen is to work on their long-term plan for the area. This is something that they already continuously do, but which is not perceived clearly by the farmers yet. The key for making feasible and yet ambitious long-term plans for a landscape is to make hard decisions rather than mediating between different values and stakeholders. Not everything can be a win-win situation. If the farmers feel like no results are being delivered, it can be an indication that it is time for the Programme bureau to be more concrete on their goals and especially the choices they make. When these choices are made, it is crucial that there is continuity and consistency. The Programme Bureau Maasheggen should follow these steps and steer involved parties into the direction that is in line with the plan. From the analysis, a few tangible advices or suggestions for action can be derived:

- *Involve the local community before you create a plan.* This does not only mean involving the policy making parties and large landowners, but especially the people that live, work and recreate in the area. How this can be done is further explored in the advice on communication and participation.
- *Identify trade-offs and choose a clear path.* An example of a trade-off is the balance between intensive and extensive farming. The Ooijpolder case is a good example of extensive farming in combination with nature. We think that the programme bureau should give the municipalities advice on how intensive farms in the area should be and draw a line here.
- *Communicate plans and results.* Communicate the long-term plan to all the involved stakeholders and explain it to them. People can act on this plan if they are informed. Moreover, if the results are explained and related to the plan made, it creates more support. How this can be done is further explored in the advice on communication and participation.
- *Celebrate diversity in hedgerow shapes and management styles.* It is evident that there is not one proper way to manage a hedge. The Programme bureau can choose to promote different types of hedges. A concrete option for executing this is by using information signs close to the hedges that explain what kind of hedges there are and how they are managed.
- *Don't explore alternative business models for all farmers but only work with the few that are excited.* If the programme bureau is interested in exploring alternative business models, then they should do so together with the farmers that are interested in this as well. It should be noted that this cannot be a main vision in the Maasheggen.

Explore options to reform agri-environmental management

The agri-environmental management of the Maasheggen was subject to a lot of critique from farmers. However, this critique was also very diverse. There is not one solution, but we did find some ways to make the agri-environmental management more attractive for farmers to participate. If the right circumstances can be created, part of the farmers would even be willing to have more nature inclusive farming and to plant more hedges. Our advice is to explore the following options to adapt the agri-environmental management:

- *Increase the financial compensation.* This is especially important if there is an ambition to have more hedgerows. Since most farmers are not even fully compensated for the losses that they have due to the hedgerows, they are not interested in planting more. Maybe it is possible to get extra funding if it is framed as some kind of experiment or pilot with agri-environmental management. Also explore how Via Natura is able to gather subsidies, as they use different private and public sources.
- *Implement result-based compensation.* This can create a level playing field. It feels unfair and it is demotivating if people get the same compensation while they do not deliver.
- *Develop longer contracts.* Contracts that last longer ensure continuity in management and can also increase trust relations, since farmers do not have to worry that everything will change again after 5 years. The Programme Bureau Maasheggen should steer involved parties into this direction.
- *Explore options to establish an independent advisory committee with locals as its members.* e.g. inspired by the trilateral advisory committee. Such an independent party would get more social support in the area.
- *Create an option of participatory management.* This is important because some farmers want more control over how their hedges are managed and by whom. For the farmers that want to manage the hedgerows themselves, a proper financial compensation should be provided. Explore how Via Natura is able to have direct contracts with the farmers.
- *Keep the option of hedgerow management by professional organisations* (like VNC and Staatsbosbeheer) for the farmers that are not interested in managing the hedgerows themselves.

Improve farmer involvement and communication

The process-related dimension is mainly focused on how management goals can be achieved through communication and participation. Our results show that this is also a main point of improvement for the programme bureau. As there are different types of farmers that want to be involved on different levels, it could be a solution to make stakeholder involvement more tailor-made. Below we state some tangible options.

- *Involve farmers that want to participate when developing the vision.* The vision has already been mentioned before. By creating sessions with the local farmers or even asking them to make proposals, your vision will be better, and it will be supported more.
- *Set up general meetings.* By creating a place and time where you can provide information and create an opportunity to also receive feedback and information, it can both create more insights for the programme bureau and also gather public support and understanding. An information evening can be organised for example three times a year to get in touch with the farmers and give them an update.
- *Identify the network you work in.* Knowing the different farmers in the area will give a better insight into who wants to involve in what way. This will also give you a chance to get into contact with all the farmers in the area which creates direct contact lines.
- *Set up a contact point.* The Programme bureau could create a place for gathering complaints, tips and compliments. This way, farmers can immediately let the management know what is happening in the Maasheggen. This could be for example in the shape of an online forum.
- *Create a newsletter.* Everyone can stay informed on the decisions that are made in the area through a newsletter. This can be sent once every season to not over-inform the farmers but to keep them on board and properly informed. Keep the newsletter short so that it will be read by many.

5. Discussion

For this research project, three case studies were explored, and ten semi-structured interviews were conducted with farmers and other landowners in the Maasheggen area. This way, a lot of information was gathered regarding the perceptions and opinions which are playing a major role in the Maasheggen. Furthermore, information on comparable areas which may be relevant for the management of the Maasheggen was looked into as well. Based on all this gathered information, a well-considered advice could be created.

However, it is also important to address the limitations of this research. Firstly, there was a major time constraint, since we only had eight weeks to go through the process of creating a proposal, executing our ideas and reporting our findings. This meant that we interviewed ten farmers and landowners, while there are many more in the area. Therefore, perceptions could have been missed and too much weight could have been given to the opinion of a single farmer.

Another downside of the time restraint was that some interesting leads had to be ignored and that sometimes, we couldn't dig as deep as we would have liked. On the other hand, this also leaves some openings for future research. First of all, we reached out to contact persons in the management of the case study areas, but we only managed to discuss some questions with one of these three areas. Nevertheless, the contacts from the other two areas seemed willing to discuss our questions if there was a longer timeframe, so it would be interesting to do further research on these comparable areas. It could be nice to include even more different MaB areas, to learn more about how these areas are managed.

Secondly, the total amount of farmers *within* the area is still debated and unclear. With all the interviews giving different numbers, it is necessary to map out the accurate number of farmers and other landowners and their location, in order to communicate properly. Besides the farmers that want to be actively involved in the management of the Maasheggen and those who just want to be informed, there could be a third group of farmers who do not care at all about the area and the management. This group of farmers (some of which could have come from elsewhere and thus do not have a connection to the area) could pose a threat, because of intensive land management or neglect of cultural and natural elements. We did not manage to get in contact with a farmer from this category, so their point of view is missing from our synthesis and advice. We also did not learn anything regarding this challenge from the case studies. This is a knowledge gap that needs to be addressed in order to prevent problems. For example, further research could be to study many more farmers' perceptions and find concrete patterns or categories of farmers.

Another opportunity within the Maasheggen area would be to learn more about how the local population (other than farmers) perceive the area. Do they already know a lot about the landscape and its history, or are they mostly unaware of living next to a UNESCO heritage site? Would they be interested in stimulating tourism in their towns? Would some people like to get involved in volunteering related to e.g. hedgerow management or braiding? By creating awareness, the population may value their surroundings more and thereby be more motivated to help protect and conserve it.

All in all, we hope that this research provided useful insights and could be a basis for further research on the Maasheggen area and other landscapes where different values are balanced. We also hope that our advice will be useful for the Maasheggen programme bureau.

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Appendices

Appendix 1: Interview questions (in Dutch)

Introductie (-2-0 min)

- Voorstellen en bedanken dat de geïnterviewde tijd voor ons heeft kunnen maken.
- Academisch onderzoeksteam van de WUR, opdrachtgever is het Programmteam Maasheggen UNESCO Mens & Biosfeer.
- Ons doel is om de gedachten en meningen van boeren in het Maasheggen gebied in kaart te brengen. Daarnaast willen wij kijken welke kansen er in het gebied zijn voor boeren en welke zorgen zij hebben.
- Hoeveel tijd heeft u voor ons? Het interview zal tussen de 45 minuten en 1,5 uur duren, dit hangt af van de antwoorden. We zullen beginnen met een introductie van uw bedrijf, vervolgens behandelen we een aantal thema's zoals de Mens- & Biosfeerstatus, de heggen en kansen en uitdagingen in het gebied.

Privacy (0-3 min)

- Vindt u het goed als wij dit interview opnemen?
- Als u dat wilt, zullen we in het rapport pseudoniemen gebruiken om uw anonimiteit te waarborgen.
- Als er zaken zijn waar u liever geen antwoord op wilt geven kunt u dat gedurende het interview aangeven.
- Er is geen goed of fout betreffende de antwoorden. We zijn juist benieuwd naar uw mening, standpunten en ervaringen.

1. Zou u ons het een en ander kunnen vertellen over uw bedrijf? (3-8 min)

- Wat voor een bedrijf heeft u?
 - Hoe ziet u bouwplan eruit?
 - Hoeveel hectares? Vooral eigendom of vooral pacht?
 - Waar liggen de percelen en is dit allemaal in het Maasheggengebied?
- Is de boerderij uw enige vorm van inkomen of heeft u (of uw partner) er meer? Zo ja, wat?

2. De UNESCO Mens & Biosfeer status van de Maasheggen (8-18 min)

- **Wat denkt u van de Mens- en Biosfeerstatus van het Maasheggengebied?**
 - Wat was uw eerste reactie/gevoel over de Mens- & Biosfeerstatus?
 - Hoe denkt u er nu over? Als uw mening veranderd is, waardoor komt dit?
 - Denkt u dat het beperkingen of kansen biedt?
 - Denkt u dat de M&B status meer toeristen naar de Maasheggen brengt of zal gaan brengen?
- **Wat weet u van het Maasheggen UNESCO M&B-projectteam af?**
 - Wat willen ze volgens u bereiken?
 - Heeft u contact met het projectteam van de M&B status?
 - Hoe ervaart u de communicatie met het Maasheggen UNESCO M&B-projectteam?
 - Hoe zou u met hen willen communiceren? / Hoe kan de communicatie verbeterd worden?
- **Zijn er onduidelijkheden over het doel van het programmabureau en de M&B-status van UNESCO?**

3. Heggen (18-28 min)

- Zijn er heggen op uw land? Op al uw percelen?
- **Wat vindt u van de heggen in de Maasheggen?**
- **Wat vindt u van de heggen op uw land?**
- **Op wat voor manier zijn de heggen waardevol voor u?**
 - Vindt u dat de heggen cultureel erfgoed zijn?

- Vindt u dat de heggen een belangrijke natuurlijke waarde hebben?
- **Wat zou u ervan vinden als er meer heggen in het gebied Maasheggen komen?**
 - Zou u graag meer/minder/evenveel heggen op uw eigen land willen?
 - Ziet u mogelijkheden om meer heggen op uw eigen land te hebben?
- **Onderhoudt u de heggen zelf of wordt dit door iemand anders gedaan?**
 - Op welke manier en hoe vaak snoeit u de heggen?
 - Wat zijn de kosten van het onderhoud en wie betaalt dit?
- **Wat vindt u van het beheer van de heggen in het hele Maasheggen-gebied?**
 - Wie is hierbij betrokken?
 - Wie denk je dat hierbij betrokken zou moeten zijn?

4. Betrokken partijen (28-33 min)

- **Bent u betrokken bij een collectief or een andere samenwerking** in het Maasheggen gebied? Met wat voor partijen werkt u samen?
- **Hoe verloopt de samenwerking in de Maasheggen?**
 - Is het intensief/ kan meer, verloopt het prettig of zijn er conflicten?
 - Hoe is de communicatie?
- **Ziet u mogelijkheden voor andere vormen van samenwerking** in het Maasheggengebied? Zo ja, met wie, hoe en waarom?

5. Verdienmodellen (33-48 min)

Intro: we willen het graag hebben over hoe u uw winstgevend maakt en wat uw visie is op de toekomst.

- Heeft u door te ondernemen in de Maasheggen meer of minder moeite een winstgevend bedrijf te draaien?
 - Hoe zou de huidige situatie verbeterd kunnen worden?
 - Denkt u dat de Mens- en Biosfeerstatus financiële kansen biedt?
- **Hoe ziet u de toekomst van uw bedrijf?**
 - Zou u willen intensiveren? Of heeft u het gevoel dat dat nodig is?
 - Ziet u financiële kansen om beter te boeren in de Maasheggen?
 - Heeft u (of uw partner) weleens overwogen om een extra baan te nemen om uw financiële positie veilig te stellen?
 - Denkt u dat alternatieve verdienenmodellen positief zouden kunnen zijn voor uw bedrijf?

Wij hebben gekeken naar andere Mens en Biosfeergebieden om te kijken wat voor verdienenmodellen de boeren daar hebben. Dit hebben we ook bekeken in andere gebieden in Nederland waar landbouw, cultureel erfgoed en natuur gecombineerd zijn. Daaruit hebben we een paar voorbeelden genomen om hier te laten zien. Het is niet zo dat we u proberen te overtuigen van een ander verdienenmodel, maar we proberen een beeld te krijgen van de mogelijkheden die boeren al dan niet zien. We willen graag van u weten:

- Wat u denkt van zo'n soort verdienenmodel?
- Of u denkt dat het toepasbaar zou zijn voor de Maasheggen?
- Of u denkt dat het voor u toepasbaar zou zijn?

6. Als laatste willen we het hebben over wat u ervan vindt om boer te zijn in het Maasheggengebied, los van de financiële kant (48-55 min)

- Wat maakt de Maasheggen een waardevol gebied volgens u?
 - Hoe ervaart u het cultureel erfgoed in het Maasheggengebied? Wat is volgens u cultureel erfgoed in de omgeving?
 - Hoe ervaart u cultureel erfgoed op uw land?
 - Hoe ervaart u natuur/soortenrijkdom in de Maasheggen als geheel?
 - Wat denkt u van de natuur op uw land? Denk aan heggen, planten, dieren, poelen. Ziet u kansen om meer of minder van deze elementen te creëren/behouden?
 - Voelt u zich verbonden met het Maasheggengebied? Zo ja, hoe?

- Vindt u het belangrijk dat de waarden van het gebied en kennis over het gebied wordt gedeeld met anderen? Zou u hierbij betrokken willen zijn?
- In hoeverre voelt u zich gewaardeerd?
 - Door de inwoners van de Maasheggen?
 - Door consumenten of de samenleving?

Einde (55-58 min)

- Hoe ziet u de toekomst als ondernemer in dit gebied?
- Heeft u nog vragen of opmerkingen, of wilt u nog iets kwijt dat niet is besproken?
- Dat waren alle vragen. **Audiotape stopzetten.**
- Ten slotte:
 - Op donderdagmiddag 19 december geven we een presentatie over onze bevindingen in Boxmeer. U bent van harte welkom
 - Contactgegevens uitwisselen.
 - **Snowballing:** we hebben nu een aantal interviews gepland staan met boeren die aangesloten zijn bij het Delta Collectief. Eigenlijk zijn we ook nog op zoek naar andere boeren in de Maasheggen die niet zo actief betrokken zijn bij het Delta Collectief of bij de Mens en Biosfeer projecten.
 - Kent u toevallig een boer die daar niet bij betrokken is?
 - Zou u hem/haar met ons in contact willen brengen?
- Bedanken en afsluiten

Appendix 2: Interview analysis template

For initial analysis (in Dutch):

- Using the audiotape and notes that were taken during the interview, the template can be filled in. Each table represents a theme from the interview. The topics per theme are related to the interview questions, but **you don't have to fill in the table chronologically.**
- Minimise literal transcription of the interview, as this takes a lot of time. Instead, take out the important messages from the interview.
- If necessary or convenient, you can add quotes to support the message, or transcribe a little part of the interview. **Use “..” if you use quotes!**
- **Mention the audiotape time** with the summary/quote so that we can find it back if necessary
- Mention the landscape dimensions that are related to the answer of the interviewee
- If you have an answer that is not related to any topic, you can make a new topic in the last table. Do not add topics to existing themes, even if the topic relates to a theme. It's easier to have all topics that were added later in one table.
- Some topics overlap. If this is the case, you can mention 'see the topic about ... in the theme about ...'
- You can use Express Scribe to make the analysis easier (ask Arjen/Rianne)
- Use a fresh template for each interview

For further analysis (in English):

- Identify the most important messages from the interview for each landscape dimension. Also identify how the dimensions interrelate. Which are the win-wins? What are the trade-offs?
- The landscape dimensions ensure that we take the important aspects into account
- The next step is to identify the strengths and weaknesses (present) and the opportunities and threats (future).
- ...

Theme: Introduction

Important topics	Quotes and / or summary
Name of owner of property	
Description of company	

Theme: MaB

Important topics	Quotes and / or summary	Related dimension(s)
Idea about MaB (now and in future)		
Contact with program management		
Uncertainties		

Theme: Hedgerows

Important topics	Quotes and / or summary	Related dimension(s)
Hedgerows on own land		
Hedgerows in Maasheggen (also on different types!)		
Values of hedgerows		
More hedgerows?		
Management of hedgerows		

Theme: Parties involved

In this theme, the info about the collaboration between the Delta collective, the ANV, SLaBox, the authorities, the program management etc.

Important topics	Quotes and / or summary	Related dimension(s)
Involvement in landscape and hedgerow management		
Idea about current cooperation		
Possibilities for further cooperation		

Theme: Business models

Important topics	Quotes and / or summary	Related dimension(s)
Running a business in the Maasheggen		
Vision on future of the company		
Ideas on alternative business models		
Example: Devon		
Example: Bliesgau		

Example: Agritourism		
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Theme: Values of the landscape

Important topics	Quotes and / or summary	Related dimension(s)
Cultural heritage		
Natural values		
Identification with area		
Knowledge dissemination		

Theme: Unspecified

Important topics	Quotes and / or summary	Related dimension(s)
Tourism		

Appendix 3: Management Summary (in Dutch)

See next two pages

Maasheggen MaB

Samenvatting en Uitvoeringsadvies

INTRODUCTIE

Het Maasheggengebied is het oudste cultuurlandschap van Nederland. Veel van de oude heggen hebben de tand des tijds doorstaan en dit was één van de redenen waardoor het gebied de UNESCO Mens- en Biosfeer status heeft gekregen. Toch bedreigen hedendaagse uitdagingen het idyllische landschap: Boeren hebben moeite om hagen goed in hun bedrijf in te passen en tegelijkertijd de wereldmarkt bij te houden.

Het Maasheggen UNESCO-programmabureau is opgericht om plannen te ontwikkelen voor het behoud en herstel van de heggen en andere culturele en natuurlijke elementen van de Maasheggen. Zij beseffen dat dit niet mogelijk is zonder de boeren, die het gebied hebben gemaakt zoals het is. Het is daarom belangrijk om te weten waar zij tegenaan lopen en wat er gedaan kan worden om de boeren en de heggen in de Maasheggen te behouden. Om dit te onderzoeken zijn er interviews gedaan met lokale boeren en er zijn case studies uitgevoerd, waarbij vergelijkbare gebieden zijn onderzocht. Met behulp van een SWOT-analyse zijn een aantal managementadviezen gevormd.

Voor meer informatie, zie het volledige rapport(1).

INTERVIEW RESULTATEN

De geïnterviewde landeigenaren hadden uiteenlopende ideeën over de heggen, het beheer ervan en het levensvatbaar houden van landbouw in het gebied. Er konden echter wel enkele algemene boodschappen worden aangewezen. Het is moeilijk vast te stellen welk type heggen historisch gezien het juiste is, dus is het belangrijk om weloverwogen beslissingen te nemen op basis van de behoeften en wensen voor een specifieke plek. Alternatieve bedrijfsmodellen, zoals het aanprijzen van lokale producten of het winnen van neveninkomsten uit toerisme, kunnen een kans zijn voor sommige boeren in het gebied - maar niet voor alle.

“Waar zijn de heggen voor? ... Welke kant willen we op?” (1)

Alle geïnterviewde boeren willen graag op de hoogte worden gehouden over wat er in het gebied gebeurt. Velen zouden graag ook meer inspraak willen hebben in het beheer van het gebied, maar hebben het idee dat dit nu niet mogelijk is, terwijl het juist de voorouders van deze boeren waren die het gebied ooit hebben gecreëerd. Er is dus ruimte voor betere communicatie met de boeren, maar ook tussen de verschillende organisaties in het gebied werd een gebrek aan communicatie opgemerkt. Om het onderlinge vertrouwen te versterken moet consistent en transparant te werk gegaan worden.

RESULTATEN VERGELIJKBARE GEBIEDEN

Rhön is een M&B-reservaat in Midden-Duitsland wat haar status in 1991 kreeg. Het gebied heeft een hoge ecologische waarde dankzij een lange historie van van extensieve landbouw. Net als de Maasheggen werd ook Rhön geconfronteerd met het verdwijnen van deze extensieve manier van landbouw bedrijven. Om dit tegen te gaan, richtte de directie zich op het creëren van extra inkomstenbronnen, door lokale producten aan te prijzen met korte ketens, en door het promoten van toerisme. De beheersstructuur van het Rhön-gebied omvat drie deelstaten, een onafhankelijk adviescomité en een nauwe betrokkenheid van de lokale bevolking.

Het **Noord-Devon** gebied in het Verenigd Koninkrijk kreeg al in 1976 de UNESCO M&B-status. Dit gebied heeft, net als de Maasheggen, historische hagen. De belangrijkste inkomensbron voor het gebied is de landbouw, hoewel de lokale boeren een relatief laag inkomen hebben. In tegenstelling tot de economische positie van de lokale boeren, is het ecologisch beheer van het gebied wel succesvol. In Noord-Devon zijn veel verschillende partijen betrokken bij het gebiedsbeheer, via hun deelname aan het North Devon Biosphere Reserve Partnership.

De **Ooijpolder** is een Nederlands landschap in de uiterwaarden van de Waal. Pas recentelijk is de ambitie ontstaan om dit gebied te ontwikkelen tot een visueel aantrekkelijk landschap met natuurgebieden, landbouw en heggen. Deze ambities worden grotendeels uitgevoerd door een onafhankelijke stichting genaamd 'Via Natura'. Door deze grootschalige ambitie zijn ze erin geslaagd om extra subsidies te krijgen. Ondanks dit succes heeft het gebied ook te maken met een afname in het aantal boeren. Extensieve landbouw of het promoten van lokale producten bleek voor zeer weinig boeren haalbaar.

(1) Brak, A. Bruls, A., Huang, X., Kat, R., Kruiswijk, L. Mparmpakonstanti, A. (2019). Modern agriculture in an ancient landscape; Balancing cultural and ecological values with economic viability for farming in the Maasheggen UNESCO Man and Biosphere area.

SWOT ANALYSE

De tabel hiernaast toont de sterke en zwakke punten, kansen en bedreigingen voor het Maasheggengebied.

De punten in **oranje** gaan over al het beheer en de projecten in het gebied. De **blauwe** punten gaan over wie er bij het maken en uitvoeren van de plannen betrokken zijn en hoe er gecommuniceerd wordt. Deze

SWOT is gebruikt om verschillende strategieën te identificeren en een advies te formuleren voor het programmabureau Maasheggen UNESCO.

Interne Factoren	
Strengths	Weaknesses
Verbinding met regio en heggen Lokale kennis over onderhoud Gecoördineerd onderhoud heggen Positieve perceptie M&B-status Enthousiasme Sterke sociale contacten	Financiële compensatie Geen haalbare zakelijke kansen Geen positief resultaat M&B-status Onbegrip en wantrouwen Gebrek aan participatie Hoeveelheid & diversiteit van betrokkenen Transparantie Communicatie
Externe Factoren	
Opportunities	Threats
Branding UNESCO status Subsidies Alternatieve bedrijfsmodellen Tourisme Ruilverkaveling Agrisch natuurbeheer Samenwerking	Intensivering van landbouw Landeigenaren van buitenaf Natuurbeleid Beleidsplan " Ruimte voor de rivier " Bureaucratie

SUGGESTIES VOOR HET BEHEER VAN DE MAASHEGGEN

1. Creëer een langetermijnplan en bouw een merknaam op

- **Betrek de lokale gemeenschap** voordat tijdens het maken van een plan en niet pas daarna.
- **Kies een duidelijke weg** en denk na over hoe intensief de boerderijen in het gebied idealiter mogen zijn.
- **Communiceer plannen en resultaten** om terugkoppeling te krijgen en draagvlak te creëren.
- **Waardeer de diversiteit** in haagvormen en managementstijlen door bijvoorbeeld informatieborden te maken over verschillende soorten heggen.
- **Verken alternatieve bedrijfsmodellen** alleen met een kleine groep landbouwers die hier enthousiast over is.

2. Onderzoek mogelijkheden en stuur aan op mogelijkheden om het agrarisch natuurbeheer van het gebied anders op te zetten. Enkele suggesties zijn:

- **Verhoog de financiële compensatie** door te kijken naar extra subsidiëring en hoe andere gebieden de financiering regelen.
- **Implementeer een resultaatgerichte compensatie** die alleen wordt uitbetaald wanneer het resultaat van voldoende kwaliteit is.
- Maak **langere contracten** voor heggenbeheer.
- Richt een **onafhankelijk adviescomité** op, waarbij de lokale bevolking betrokken kan zijn.
- Creëer een **optie voor participatief beheer**; dat wil zeggen dat de boeren vrij zijn om hun eigen heggen te beheren.
- Houd de mogelijkheid van **heggenbeheer door professionele organisaties** (zoals VNC en Staatsbosbeheer) in stand.

3. Verbeteren van de betrokkenheid van en communicatie met de boer

- **Betrek boeren** die willen meedenken over de toekomst van het gebied.
- Stel **algemene vergaderingen** in, bijvoorbeeld drie keer per jaar.
- **Identificeer het netwerk** waarin je werkt, waaronder het aantal en type boeren en andere landeigenaren.
- **Stel een contactpunt in**, zoals bijvoorbeeld een online forum voor vragen, discussies of klachten.
- **Maak een nieuwsbrief** (evt. digitaal) om iedereen op de hoogte te houden.