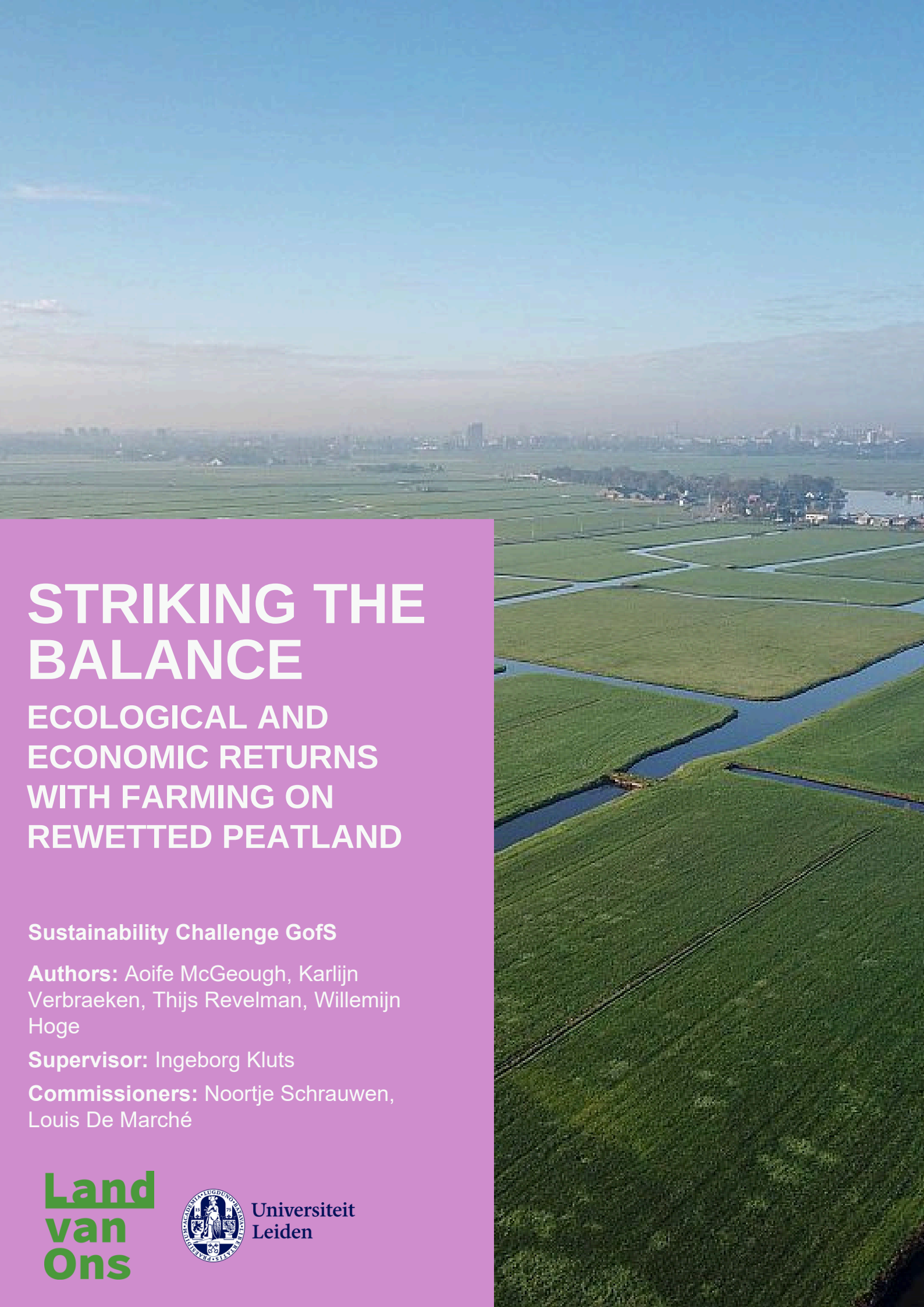

STRIKING THE BALANCE

ECOLOGICAL AND ECONOMIC RETURNS WITH FARMING ON REWETTED PEATLAND

Sustainability Challenge GofS

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Land van Ons

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Popular Summary

Land van Ons is a citizen cooperative working on biodiversity restoration in Dutch agriculture. The focus of this report is their site Oud Ade, a 33.2-hectare plot of rewetted peatland in South Holland. The aim is to answer the question “How can Land van Ons develop sustainable agriculture on rewetted peatland that balances both ecosystem restoration benefits and economic returns in Oud Ade?”. Using the 4 Returns Framework, an integrated approach is proposed to balance economic and ecological returns to the growers of Oud Ade. Financial returns highlight revenue opportunities that Oud Ade can avail of to bolster the strength of their project. Natural returns highlight possibilities to restoring biodiversity, including the expansion of Sphagnum Moss and Cattails as well as the integration of Willow trees. Inspirational returns emphasise a ‘show don’t tell’ strategy of experimenting with crops to demonstrate the potential of paludiculture. The primary finding is that social returns, which stresses the importance of community engagement, are the key element to the future success of Oud Ade. Fostering further support and collaboration amongst the Land van Ons team and the wider community supports all returns contained within the framework, and it is this social context that will determine their potential to become a flagship example of nature-inclusive, community driven peat farming in the Netherlands.

Executive Summary

This research seeks to answer the crucial question of how Land van Ons (LvO) can develop their activities on rewetted peatland at Oud Ade to optimize economic returns and ecosystem restoration outcomes. The project is set within the broader mission of LvO: transforming agricultural landscapes toward the restoration of biodiversity while promoting sustainable food production. Oud Ade is a 33.2 hectares plot in the province of South Holland and is a pilot site for experimental land-use practices that balance ecological restoration with economic viability. Agriculture in the Netherlands has been one of the main contributors to biodiversity decline and greenhouse gas emissions. The intensive farming has caused the peatland areas to sink, emitting carbon dioxide and methane as well as degrading habitats. Acquisition of the Oud Ade plot by LvO thus presents a unique opportunity to counter such trends through sustainable land management and experimental farming. Pressures on the economics of farming, land-use policies not easily changed, infrastructural limitations, and weighing of ecological priorities against expectations from the community are the key challenges in this endeavour. This report uses desk research, case studies, stakeholder interviews, and thematic data analysis. Desk research explores peatland agriculture, economic instruments of sustainability, and CSA models while projects in Germany, Switzerland, Belgium, and Denmark are used as case studies. Semi-structured interviews were performed with farmers, a representative of the association LvO, and researchers on the operational challenges and opportunities for scaling up economic returns for Oud Ade.

Results confirm ecological and economic synergies at Oud Ade. Experimental crops such as cranberries, peat moss, cattails, rice, and edible water plants offer bright prospects to marry biodiversity restoration with economic viability. In this respect, paludiculture comes out as the most effective strategy that guarantees a dual benefit of enhanced carbon sequestration and revenue generation through bio-based products like construction materials and peat-free growing media. Revenue diversification through carbon credits and ecosystem service payments provides a scalable financial mechanism to support sustainable farming. The CSA models further reduce financial risks for farmers by guaranteeing stable incomes through pre-paid memberships, while fostering community support and transparency. Despite these opportunities, there is a clear need for policy and governance reforms. Current land allocation in the Netherlands, which goes to the highest bidder, is a hindrance toward these initiatives that are focused on aspects of sustainability. True pricing mechanisms and biodiversity incentives are needed to realize supportive policy conditions. A high level of infrastructural gap exists at Oud Ade, especially in storage facilities, energy solutions, and specialized equipment, which is highly relevant to scaling up operations from experimental to operational phases.

Using such practices, developing multiple revenue streams, and enhancing collaborative governance will provide an opportunity to develop Oud Ade into a truly replicable model for sustainable peatland management. Yet, such changes in livelihood would need continuous investments, policy advocacy, and engaging communities in practice. This thus places CSA activities at the very centre of potentially transforming the role and future of sustainable agriculture in the Netherlands and elsewhere.

1. Introduction

1. Introduction

1.1 Background and Context

Land van Ons (LvO) is a cooperative dedicated to restoring biodiversity on Dutch agricultural land by acquiring and sustainably managing farmland. LvO emphasizes transforming degraded agricultural landscapes, promoting small-scale, biodiversity-rich farming practices. Key principles of the organisation are transparency, equality, and selfless contribution to sustainable land stewardship. They aim to counteract the dominance of economic-driven agricultural practices and ensure the land remains productive yet ecologically sound for future generations (de Marché and Gordijn, 2024).

A large portion of the land in the Netherlands is agricultural, where biodiversity loss has been most severe in the past 60 years (Nationaal Dashboard Biodiversiteit, 2025). LvO aims to reverse this loss and restore the nature that has been degraded by large-scale, industrial farming (characterized by the use of large machinery, the cultivation of monocultures, and the heavy reliance on chemical inputs), working with nature rather than against it through regenerative farming (Land van Ons, n.d.; Poore & Nemecek, 2018). They strive for a new "ecological main structure" for agricultural land by working with farmers to make sustainable land management choices, such as planting hedgerows and trees (de Marché and Gordijn, 2024).

For the project, the focus is specifically on the plot Oud Ade from LvO. It is a 33.2-hectare plot located in the Vrouwe Vennepolder, north of the Leidseweg in Oude Ade, South Holland (Fig.1). This peat meadow area was acquired by LvO in two phases: 21.3 hectares on October 1, 2020, and 11.9 hectares on March 5, 2021. Since acquiring the land, LvO has implemented organic management practices across the entire plot, including the previously degraded areas, and is slowly rewetting the plot by increasing the water levels (de Marché and Gordijn, 2024).

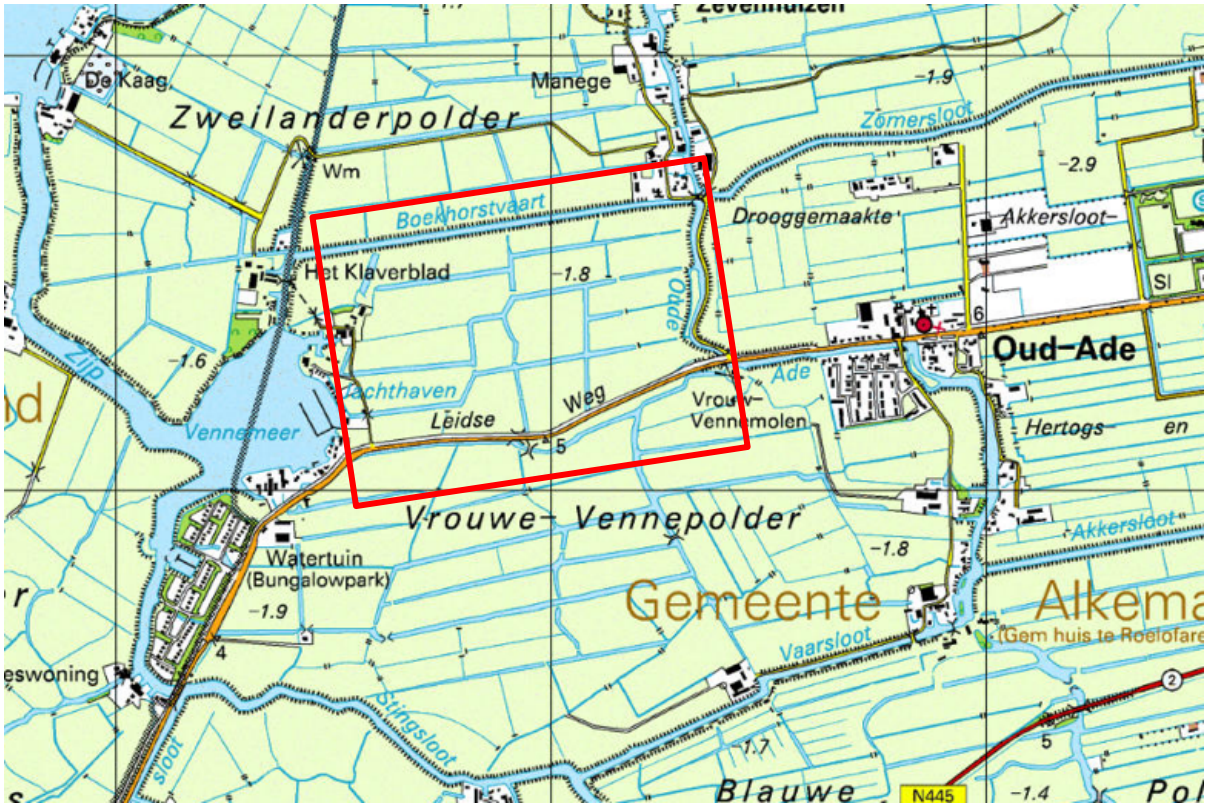

Figure 1: Location of Oud Ade plot, Land van Ons Management Plan, de Marché & Gordijn (2024)

The plot is situated upon rewetted peatland, and the research will therefore examine agricultural practices suited for this environment. Peat is a partially decomposed organic matter primarily formed from plant material in waterlogged environments (International Peatland Society, n.d.; Kopp, 2025). Beyond its ecological significance as a habitat for diverse wildlife, peatlands play a crucial role in climate regulation by acting as massive carbon sinks (Kopp, 2025). Furthermore, these ecosystems provide essential ecosystem services such as water purification and flood mitigation by acting as a sponge (De Zylva, 2019). Rewetting drained peatlands is crucial for mitigating climate change, conserving biodiversity, and maintaining the vital functions of these valuable ecosystems. This research focusses on the biodiversity and ecosystem services aspects of the peatland at Oud Ade.

The Oud Ade plot is also home to the Polderlab, a 10-year experimentation initiative supported by research institutions. These experimentations include the exploration of carbon and methane emissions in conjunction with alternative grasses on Oud Ade. Oud Ade also takes on growers who are willing to experiment with alternative crops, exploring possibilities on this plot of peatland. Of the 33 hectares, 2 hectares are currently for experimental crops and 31 hectares are for cattle and hay. (de Marché and Gordijn, 2024; Polderlab, 2024) The aim is to identify crops that offer sustainable revenue models for growers and contribute to the promotion of the landscape, see outcome in 5.2. Figure 2

shows a plan of the land use of the polder including an overview of the fields of the growers who are collaborating with Oud Ade. (PolderLab, 2024)

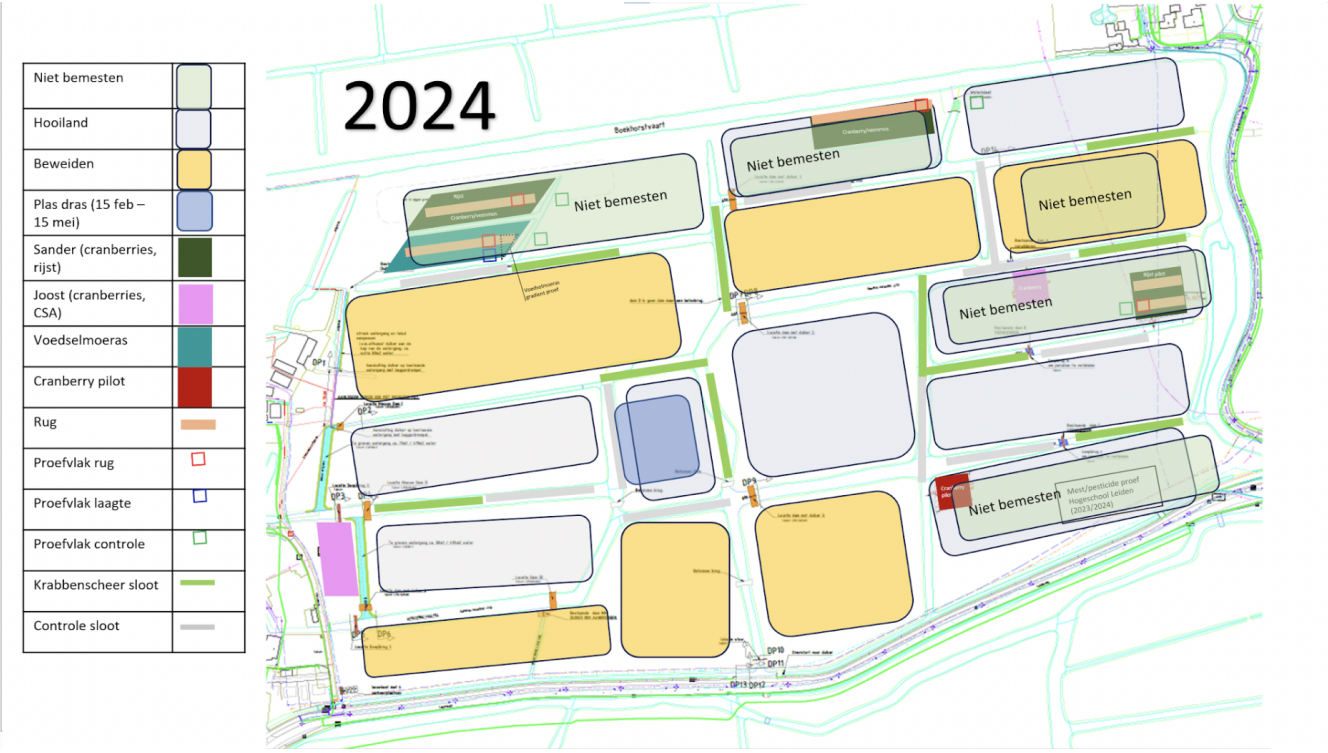

Figure 2: Plan of land use of the polder, PolderLab (2024)

1.2 Problem Statement

The challenge of balancing economic benefits and ecological restoration in projects like the one by LvO Oud Ade is a complex one. On the one hand, there is a clear need to support the livelihoods of farmers and maintain agricultural production. On the other hand, there is a growing recognition of the importance of peatland restoration for preserving biodiversity.

One of the key challenges is finding new ways to generate income from peatland while minimizing its degradation. LvO's exploration of alternative methods of economic return that fit within their desired practices, such as Community-Supported Agriculture (CSA) and local supply chains, is a promising step in this direction. They aim to build stronger connections between farmers and consumers, while also reducing the environmental impact of food production. Another potential avenue for generating income is through carbon offsetting and payments for ecosystem services. Peatlands store large amounts of carbon, and by restoring these ecosystems, farmers can potentially earn revenue by selling carbon credits.

However, it is important to note that these alternative revenue streams may not be sufficient to fully compensate farmers for the economic losses associated with reduced agricultural production.

Therefore, it is crucial to find a balance between financial goals and restoration efforts. This may involve careful planning and management, as well as targeted investments in research and development to identify the most effective and sustainable practices. By diversifying their activities, farmers can reduce their reliance on traditional, intensive agriculture and create more resilient and sustainable livelihoods.

Overall, the challenge of balancing economic benefits and ecological restoration on peatland is a significant one. However, by researching solutions that can be used on Oud Ade, hopefully this can get LvO a step closer to their goal.

Therefore, the research question to be answered is:

How can Land van Ons develop sustainable agriculture on rewetted peatland that balances both ecosystem restoration benefits and economic returns in Oud Ade?

For the project, the following question and additional sub-questions will be explored:

- How can Community Supported Agriculture (CSA) initiatives aid in Oud Ade's ability to achieve their goals of balance?
- What are examples of best practice cases where rewetted peat farms have achieved viable business and ecosystem restoration models?
- How can Oud Ade develop streams of revenue for the farmers and growers in new ways, including governance structures, carbon credits and additional funding?

The project's key outcomes include this final report, a research poster summarizing the research process and key findings, a concise 1-2 page document outlining actionable recommendations for Oud Ade, and a presentation in Dutch to share the findings directly with the growers at Oud Ade, fostering knowledge exchange and demonstrating the appreciation for their participation.

This report presents a structured investigation into the research questions. Chapter 1 begins by introducing the project, LvO and Oud Ade as well as the problem statement. Chapter 2 then delves into theresearch methodology, outlining the approach and the foundational framework. Following this, Chapter 3 presents the findings of the desk research, case studies, and interviews. In Chapter 4, these findings were analysed through the lens of the 4-Returns Framework. Building on these insights, Chapter 5 presents the recommendations. Finally, Chapter 6 concludes the report by discussing the limitations of the study and summarizing the key findings.

2. Methodology

2. Methodology

To address the objectives of the research, a robust methodological framework has been developed which integrates qualitative data collection and analysis methods. This section outlines the approaches used to collect, analyse, and synthesise the collected data from different sources, and therefore provide a strong foundation for the proposed strategies and recommendations.

The methodological approach for this research is grounded in the Commonland 4 Returns Framework, providing a structured lens through which the balance of economic returns and ecosystem restoration at Oud Ade is examined. This framework offers an interdisciplinary foundation that integrates ecological, social, financial, and inspirational dimensions, aligning with the research objectives (Commonland, 2024). By adopting the 4 Returns Framework, it ensures the analysis is rooted in a holistic perspective that values long-term sustainability and multi-stakeholder collaboration. To operationalise the framework, qualitative research methods were employed through the triangulation of in-depth interviews with stakeholders, desk research, and case study analysis. Triangulation is a widely used approach in qualitative research, involving the use of multiple methods or data sources to enhance the validity of findings (Denzin, 2015). Drawing on diverse perspectives and evidence helps to mitigate inherent biases in singular methods and provide a more comprehensive understanding of the site. Figure 3 below shows how these three parts of the methodology help answer the research questions.

Figure 3: Links between methodology and research questions

2.1 Desk Research

2.1.1 General Approach

To align with the principles of a review, a transparent and reproducible approach for the desk research has been adopted. The review component focused on three interrelated themes: the CSA model, peatland agriculture in the Netherlands, and the economic viability of restored peatlands in Europe (see sections 2.1.2-2.1.4 and chapter 3). The search strategy involved identifying relevant literature using keywords such as 'peatland farming', 'CSA', 'regenerative agriculture', 'paludiculture', 'wetland agriculture', and 'agroforestry'. Databases including Scopus, Web of Science, Leiden Library Catalogue and Google Scholar, were systematically searched. Additionally, grey literature from policy reports, organisational documents, and relevant case studies to supplement academic findings has been reviewed. Inclusion criteria were defined to ensure the relevance and quality of the sources: only peer-reviewed articles, policy documents, and reports published in English or Dutch between 2010 and 2024 were considered. Articles were included if they directly addressed ecological, economic, or social dimensions of sustainable peatland agriculture or CSA practices. The screening process involved two stages. First, titles and abstracts were reviewed to identify potentially relevant studies. Second, full-text screening was conducted to confirm alignment with the research themes and objectives. The results from the review informed subsequent steps of the research, including case study selection and the design of interview questions. This structured approach not only ensured the comprehensiveness of the literature review but also provided a solid foundation for triangulating findings across multiple methods.

2.1.2 Community-Supported Agriculture (CSA) Initiatives in the Netherlands

The CSA model was highlighted by the commissioner and holds great potential for ensuring stable farmer incomes while fostering community engagement (Otters, 2008). CSA farms operate on principles of shared responsibility between farmers and members, where individuals pay a fixed fee for a seasonal share of the harvest (Otters, 2008). This is similar to Land van Ons' model and guarantees farmers a stable income while simultaneously fostering transparency, community engagement and biodiversity-inclusive farming methods. Figure 4 gives an overview of how a CSA interacts with the different stakeholders. Numerous CSA initiatives in the Netherlands have been examined and several successful examples who have demonstrated flexibility in addressing ecological and community-specific needs (See section 3.4) were highlighted. These examples provide a best practice baseline and can inform the recommendations and findings.

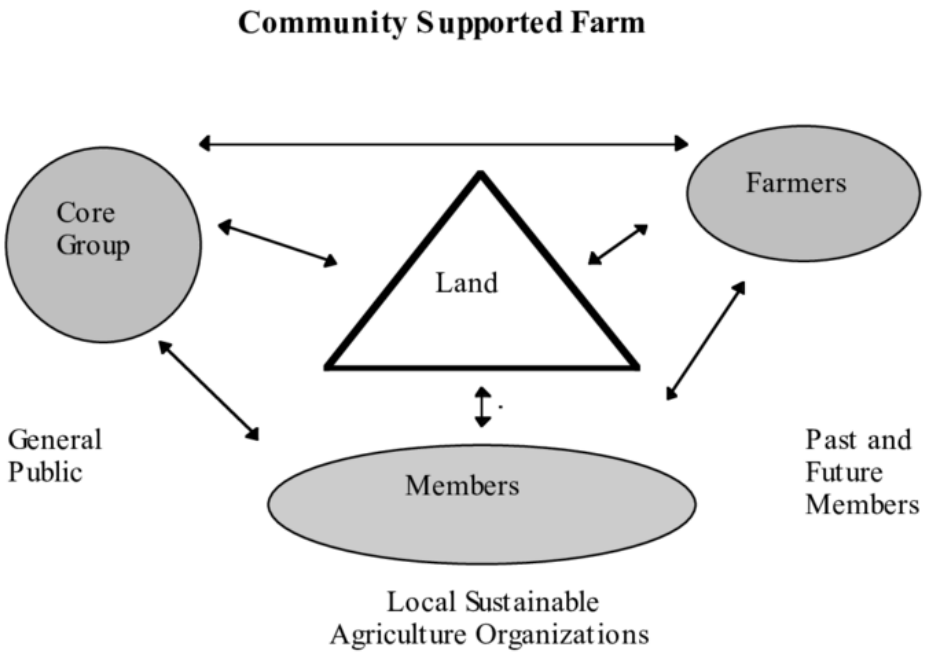

Figure 4: Community Supported Farm (Ostrom, 1997)

2.1.3 Sustainable Agriculture on Peatlands - Paludiculture

A critical component of the desk research focuses on understanding sustainable agricultural practices which can be implemented on rewetted peatlands. Specifically exploring the concept of paludiculture, which is the productive use of wet/rewetted peatlands (Vroom et al, 2022). Paludiculture has huge potential to reconcile agricultural productivity with economic restoration (Vroom et al, 2022) and is highly relevant to the operations and goals of LvO at Oud Ade. The research process involved identifying studies which addressed the ecological and practical applications of paludiculture. Literature has been reviewed to identify crops suited to wetland agriculture, and regenerative agricultural practices. Particular attention has been paid to how paludiculture can support ecosystem services such as those currently being utilised at Oud Ade, including carbon sequestration and biodiversity restoration.

2.1.4 Economic Instruments and Policy Mechanisms for Financial Support

The final theme of the desk research examined the economic instruments and governance framework switch that can facilitate the economic and ecological viability of peatland restoration and management. This element of the research focused on understanding the policies, funding opportunities, and community-driven governance models that could enable Land van Ons to fully develop their CSA activities. Policy documents, project reports, and academic studies have been reviewed, supported by relevant grey literature related to similar initiatives in the Netherlands. The

EU Nature Restoration Law (European Commission, 2024) and LIFE programme (European Commission, 2024) were highlighted for their direct relevance to the ecosystem management goals of LvO. They provide important insights into funding protocols and guidelines for how organisations can align their strategies with EU biodiversity objectives, which LvO is currently succeeding in. Furthermore, financial tools and incentives at a national level in the Netherlands have been examined, as well as in other EU countries.

2.2 Case Studies

To complement the desk research, country-specific case studies were selected to identify best-practice examples of sustainable agriculture on rewetted peatlands across Europe (see section 3.2). Case studies allow for an in-depth exploration of real-world initiatives that are being undertaken with varying degrees of success and challenges. Four countries were selected following a comprehensive research overview of areas which are successful in peatland restoration, paludiculture or sustainable agricultural practices: Germany, Switzerland, Belgium and Denmark. The countries represent diverse socio-economic and environmental landscapes and provide distinct examples of ecologically and economically successful and sustainable initiatives. The case studies were selected based on pre-agreed criteria: relevance, viability, governance, and comparability. Relevance was defined as the applicability of the initiative's practices to the environmental and socio-economic conditions of the Netherlands. Innovation referred to the use of novel or effective techniques, particularly in paludiculture or sustainable peatland management. Governance encompasses the presence of robust institutional frameworks, policies, or multi-stakeholder collaborations that support the initiative's success. Comparability ensured the selected cases reflected similar environmental, agricultural, or economic contexts to Oud Ade, allowing for meaningful lessons to be drawn. The aim was to find cases which showcase best practices in paludiculture which reflect similar environmental and socio-economic conditions to the Oud Ade site. To identify best practices, cases with robust governance frameworks or financial mechanisms that could be applied to the Oud Ade site were also selected. The case study data was collected through a combination of secondary sources, which included government reports, peer-reviewed academic articles, organisation websites and reports. Each case was analysed to identify the key agricultural techniques adopted by the initiatives and the financial mechanisms that back their success. Additionally, cases that explicitly addressed challenges in implementing paludiculture and peatland restoration were of interest for their applicability to the Oud Ade site. The similarities and differences between the countries facilitated a cross-case comparison, and key similarities were identified which will inform the recommendations.

2.3 Interviews

To provide a deeper understanding of stakeholder perspectives, semi-structured interviews have been conducted as a primary qualitative method. The intention of the interviews was to gather insights from key actors involved in the Oud Ade project. The aim was to engage directly with stakeholders and identify the challenges and diverging perspectives of each. A semi-structured interview style was selected for its flexibility, combining structured, targeted questions aligned with the research objectives, and open-ended responses to capture the nuanced experiences and motivations of the interviewees.

A stakeholder mapping exercise has been made to guide the identification of key participants following consultations with the commissioner. The aim was to visualise the roles, interests and relationships between key actors in Land van Ons' Oud Ade site. The stakeholder mapping, as seen in Figure 5, involved the categorisation of stakeholders into groups based on their relevance to the research questions.

1. Farmers and land managers actively working in Oud Ade
2. Land van Ons representatives as key facilitators of CSA and nature-inclusive farming in Netherlands
3. Researchers and experts working with Oud Ade or Polderlab

The interviewees were grouped together to detect similarities within and between the groups. The semi-structured nature of the interviews allowed interviewees to contribute additional relevant topics as they saw fit, enabling the adoption of a snowballing technique to identify additional interviewees afterward.

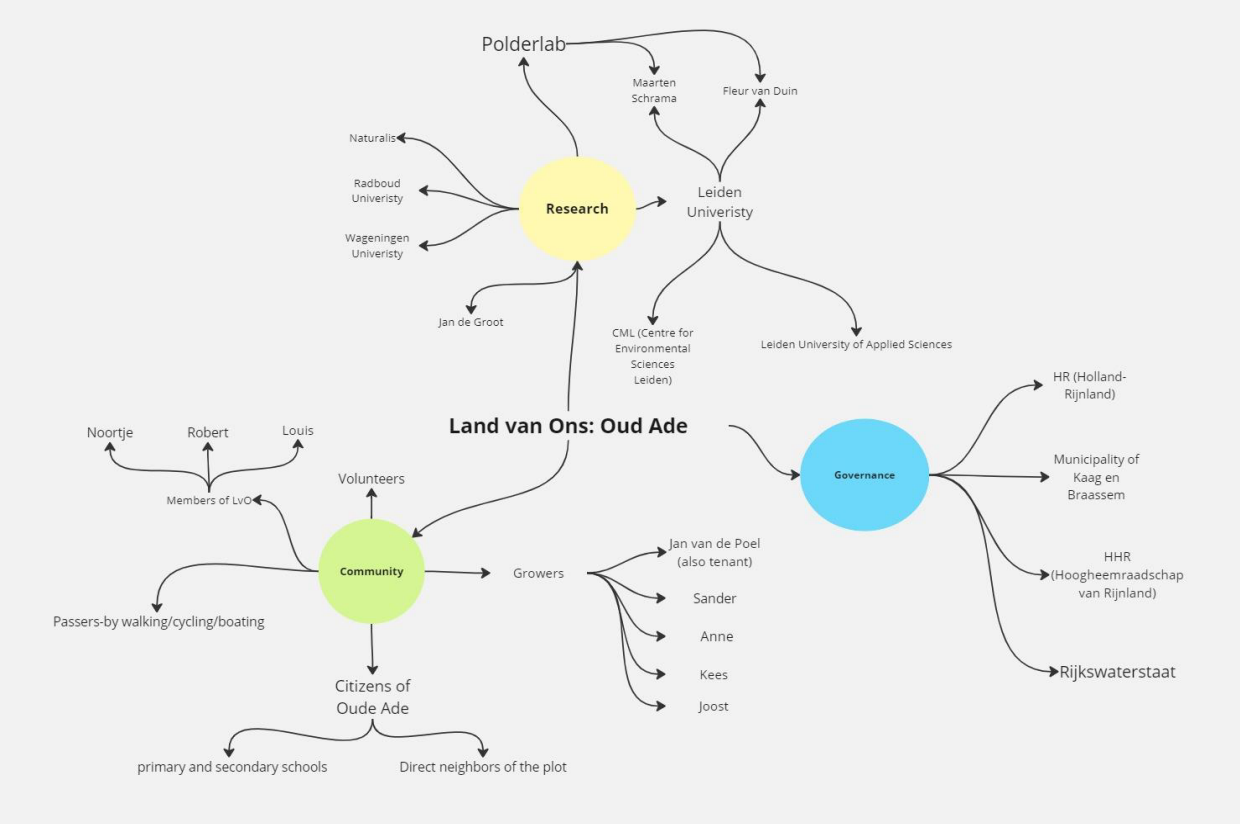

Figure 5: Stakeholder Map of Land van Ons, Oud Ade

2.4 The 4-Returns Framework: Introduction and Explanation

The Commonland 4 Returns Framework provides a comprehensive, practical approach to landscape restoration that aligns ecological, social, and economic objectives with the long-term goal of fostering resilience and sustainability (Commonland, 2024). The 4 Returns Framework seeks to reverse the four major losses associated with unsustainable land use: the loss of inspiration, social cohesion, biodiversity, and financial security. By addressing these challenges, the framework aims to deliver four measurable and transformative returns, as seen in Figure 6: the Return of Inspiration (rebuilding hope and pride), Social Returns (strengthening communities and creating jobs), Natural Returns (restoring biodiversity and ecological functionality), and Financial Returns (developing sustainable economic opportunities) (Commonland, 2024).

Figure 6: The Commonland 4 Returns Framework (Commonland, 2024)

2.4.1 The 4 Returns: Application

The 4 Returns framework's relevance to the study lies in its holistic perspective, which recognises the interplay between ecological, social, and economic systems (Commonland, 2024). At the Oud Ade site, these dimensions are critical, as Land van Ons seeks to restore degraded peatlands while maintaining economic viability for local growers. The framework's emphasis on stakeholder engagement and collaborative governance is particularly significant, as it mirrors the participatory nature of Land van Ons' approach, which involves farmers, researchers, policymakers, and community members in co-developing sustainable strategies (Commonland, 2024). In this research, the 4 Returns Framework was used to guide both the design and analysis of the study. Specifically, the framework informed the categorisation and evaluation of data within its four dimensions:

Inspirational Returns

Inspirational returns aim to restore a sense of purpose, pride, and hope within communities involved in landscape restoration. These returns focus on fostering a shared vision for the future, mobilising collective energy, and encouraging collaboration across diverse stakeholders. By promoting optimism and connection to the land, inspirational returns enable stakeholders to envision a resilient and thriving landscape, creating the foundation for sustained engagement and action. This return is aligned with SDG17 (Partnership for the Goals), which highlights the necessity of collaboration at a local, regional, national, and international level.

Social Returns

Social returns focus on improving the well-being of individuals and communities by addressing social inequities and enhancing social cohesion. This includes creating employment opportunities, improving access to education and healthcare, and fostering gender equality. By strengthening social networks and empowering local stakeholders, social returns help build resilience within communities, ensuring that they can adapt to environmental and economic challenges while actively participating in restoration efforts. This return is aligned with SDG1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), and others emphasise societal resilience, equity, and well-being.

Natural Returns

Natural returns aim to restore ecosystems to full functionality, enhancing biodiversity and ecosystem services. This involves actions such as reforestation, improving soil health, restoring water cycles, and increasing habitat connectivity. Natural returns ensure the resilience of landscapes by mitigating climate risks, reducing the likelihood of ecological collapse, and promoting the recovery of critical ecosystem functions that support both human and environmental health. This return is aligned with SDG6 (Clean Water and Sanitation), SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG15 (Life on Land), which directly links to restoring and conserving nature.

Financial Returns

Financial returns focus on ensuring the economic viability of restored landscapes by promoting sustainable business models and creating long-term revenue streams. This involves developing regenerative agriculture, eco-tourism, and other environmentally sustainable enterprises. Financial returns provide the economic incentives necessary to sustain restoration efforts, reduce poverty, and attract investments, ensuring the economic stability of the communities and stakeholders involved. This return is aligned with SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production) focus on creating sustainable economic systems.

To operationalize the framework, the results from each of the three elements of the methodology were then categorized into the relevant returns. The framework guided the evaluation process, enabling the assessment of how strategies could enhance and strengthen each return. This approach facilitated the categorization of results in alignment with the dual objectives of ecosystem restoration and economic viability within the Oud Ade context.

3. Results

3. Results

3.1 Desk Research

3.1.1 Peat farming in NL

Peat farming is a traditional agricultural practice in the Netherlands which is concentrated in low-lying peat meadow areas. These regions are primarily located in the western and northern provinces (Stichting Nationale Koolstofmarkt, 2021). Characterized by their rich organic soils formed from partially decomposed plant material, these soils have been highly valued for dairy farming due to their high fertility and water-retaining properties (Poppe et al., 2021; van Boxmeer et al, 2021). However, the environmental consequences of exploiting and draining these lands are becoming increasingly evident. The decomposition of organic matter in drained peatlands leads to significant greenhouse gas emissions, contributing to climate change (Tiemeyer et al. 2016 & Schrier-Uijl et al. 2014). Additionally, land subsidence resulting from peat oxidation increases flood risks and threatens infrastructure (Council for the Environment and Infrastructure, 2020)

To mitigate these issues, strategies such as rewetting peatlands and adopting paludiculture are being explored. Rewetting involves raising the water table to bring a halt to peat decomposition, thereby reducing CO_2 and methane emissions and slowing land subsidence (Temmink et al. 2023). Paludiculture allows for the cultivation of crops suited to wet conditions, enabling continued agricultural use of the land while maintaining its ecological functions. (Tanneberger et al. 2022)

Nevertheless, implementing these strategies presents challenges. Rewetting can also lead to increased methane emissions and the economic viability of paludiculture is still under investigation. Farmers may face high initial costs and uncertain returns when transitioning to these new practices (Tanneberger et al. 2022). Therefore, balancing the economic interests of farmers with environmental objectives remains a complex issue, while needing collaborative approaches among policymakers, researchers, and the agricultural community to develop sustainable solutions (Van Boxmeer et al., 2021). Reports highlighted some knowledge gaps related to crop management and the socioeconomic feasibility of paludiculture, which will be incorporated into the findings and recommendations (Wichman, 2021; see section 5).

3.1.2 Economic Viability in context of peat farming

Economic viability in the context of sustainable agriculture on peatlands refers to the ability of farming systems to generate sufficient revenue while minimizing environmental impact, covering operational costs, and providing a reasonable return on investment (Galioto et al, 2023). It is a measure of financial

sustainability that accounts for both economic and ecological health in peatland farming. A key aspect of economic viability in peatland agriculture is the comparison of benefits to costs. For example, the implementation of sustainable practices, such as water management and controlled drainage systems, may initially involve higher costs but offer long-term benefits in terms of improved soil quality, carbon sequestration, and reduced greenhouse gas emissions (Galioto et al., 2023). These ecological benefits can be considered as part of the overall value of sustainable farming systems on peatlands and should be weighed against the costs of implementing these practices.

Beyond direct financial returns, sustainable peatland agriculture can also contribute to broader community well-being. This includes fostering local knowledge networks, creating opportunities for eco-friendly agritourism, and enhancing social capital by promoting collaboration between farmers, researchers, and environmental organizations (Batie et al., 2003; Lyson & Green, 1999). These social and cultural benefits can support the long-term economic viability of peatland farming, making it a valuable component of local economies.

In the context of sustainable agriculture on peatlands, economic viability involves a complex interplay of biological, social, and environmental factors. The concept of viability, as defined by Aubin et al. (2011), encompasses the ability of agricultural systems to adapt to changing environmental conditions, such as peatland subsidence, climate variability, and shifting market demands. These constraints may include the costs associated with adopting sustainable practices and the potential benefits derived from ecosystem services such as carbon storage and water filtration.

3.1.3 Community-Supported Agriculture (CSA)

Community-supported agriculture emerged as a model to address ecological, social and economic challenges in modern food systems. Its intention is to foster direct relationships between farmers and the local consumers, to promote sustainable agricultural practices and build community ties. Findings from five selected studies were synthesized: Cone and Myhre (2000), Bijman (2012), Van Oers et al. (2018), the USDA (2017), and Ostrom (2007). These studies were selected for their thematic relevance and empirical depth, and the analysis has been extracted based on the key themes of sustainability, economic viability, community, scalability, and legitimacy.

All studies highlight CSA's role in promoting sustainable agricultural practices. CSA farms typically employ organic and sustainable methods, with members sharing the risks of food production (Cone and Myhre, 2000). CSA is also positioned as a grassroots response to environmental degradation by fostering land stewardship and reducing dependency on industrial food systems (Ostrom, 2007).

Sustainability outcomes depend on educating members about the environmental benefits of CSA practices, suggesting that the model's environmental impact is closely tied to community understanding and participation (Van Oers et al, 2018). .

Economic sustainability is a recurring theme that has been discussed earlier in section 3.1.2. The USDA describes how, in the context of CSA models, it has evolved to include multi-farm collaborations and e-commerce platforms, enhancing its ability to reach broader markets and diversify income streams (USDA, 2017). Cone and Myhre (2000) argue that the pre-payment structure of CSA reduces financial uncertainty for farmers, enabling them to focus on sustainable practices. However, Bijman (2012) warns that economic viability requires strong governance, especially as membership heterogeneity increases. Several studies highlight challenges such as member turnover and the need for significant upfront investments.

3.1.6 CSA Initiatives in Holland

CSA farms across the Netherlands illustrate the diversity of approaches and models that can guide the LvO team in Oud Ade (Van de Kop et al, 2008). CSA De Stadsgroenteboer near Amsterdam employs regenerative techniques such as no-dig farming and operates on a solidarity payment system to ensure accessibility for all. Similarly, CSA Tuinderij Het Groene Leven in Spaarnwoude emphasises biodiversity by avoiding pesticides and artificial fertilisers while allowing members to harvest produce themselves. Regenerative farming methods and community engagement can be successfully integrated into the CSA model (Van de Kop et al, 2008)

In South Holland, CSAs like Het Zoete Land in Leiden and CSA Elsgeesterhof in Voorhout prioritise community connection through pick-your-own systems that promote healthy, organic food production and deeper consumer involvement (Maarhuis, 2022). Educational initiatives form another critical dimension of CSAs in the Netherlands. Stichting Ecoring in Haarlem integrates social goals by offering seasonal courses and workshops that educate members on ecological farming practices while supporting struggling teenagers and young adults (Maarhuis, 2022). Likewise, CSA Gelukkige Groentes in Gelderland combines ecological farming with educational programs for schools, fostering awareness and knowledge about sustainable agriculture (Maarhuis, 2022) CSA de Wilde Peen in Ede operates as a self-harvest garden, promoting a trust-based system where members take only what they need, fostering a sense of community responsibility (Maarhuis, 2022).

Dutch CSAs address the disconnect between food producers and consumers by promoting transparency, reciprocity, and direct involvement.

3.1.4 Organisations Similar to LvO

In the Netherlands, sustainable agriculture is increasingly being driven by new initiatives that challenge traditional farming and land-use practices. Among these initiatives are Herenboeren, Lenteland and Aardpeer, which have similar ideas as Land van Ons, as can be seen in Table 1. They all aim to address pressing challenges such as biodiversity loss, soil degradation and the gap between consumers and food production. While they share common goals of sustainability and community engagement, each initiative approaches these issues with its own unique model and focus area.

Table 1: Overview of the sustainable agricultural organisations discussed

Herenboeren is a cooperative farming initiative where members contribute upfront fees and annual payments to fund farm operations. It operates on a local scale and emphasizes direct community involvement in food production through a member-based cooperative model. The main goal is to engage local communities in sustainable farming while ensuring a steady supply of locally produced food (Herenboeren Heemstede, 2025).	**Lenteland** focuses on regenerative farming practices, helping communities to start a farm on leased land. It operates on a national scale, with multiple projects across the Netherlands. The initiative aims to promote agroecology, regenerative farming, and land access, which enables communities to adopt sustainable agricultural methods while fostering ecological restoration (Lenteland, 2024).	**Aardpeer** is dedicated to preserving farmland and promoting sustainable agriculture through shared investment funds. Its focus is on long-term farmland preservation and providing a sustainable investment model that ensures land remains in responsible hands. This initiative is centered on safeguarding farmland for future generations by promoting sustainable farming practices and long-term ecological health (Aardpeer, 2021)

While all four initiatives share a commitment to shared ownership, sustainable practices, and community engagement, they differ in their models and specific goals. Herenboeren and Lenteland are more focused on food production, while Herenboeren concentrates on community-based, local farming and Lenteland focuses on regenerative farming practices. Aardpeer is dedicated to farmland preservation through investment funds, and Land van Ons distinguishes itself by focusing on ecological restoration and rethinking land ownership.

In terms of approach, Land van Ons and Lenteland share a grassroots mobilization model, but Lenteland is less concerned with developing a specific farming system and more focused on transforming landscapes through regenerative practices (Lenteland, 2024).

3.1.5 Government Funding Opportunities

Valuta Voor Veen

Valuta voor Veen (VvV) is a Dutch initiative aimed at rewarding efforts to restore peatlands through the sale of CO2 certificates, Figure 7 depicts how such a system works. Raising the water level in peatlands greatly reduces greenhouse gas emissions while restoring biodiversity. For every ton of CO2 not emitted, stakeholders receive a certificate that can be sold to companies or institutions wishing to offset their CO2 emissions. (Valuta voor Veen, 2024)

Other Grant Opportunities

In addition to VvV, there are several other national and European initiatives that can help fund biodiversity restoration and water level elevation:

- *EU Life Program:* This grant program supports projects aimed at nature restoration, climate adaptation and environmental protection. A project focused on peatland restoration and biodiversity could be eligible for funding within the category “Nature and Biodiversity”. (European Commission, 2020).

- *POP3 grants (Plattelandsontwikkelingsprogramma):* These grants focus on innovation and sustainability in the agricultural sector. Raising water levels and integrating biodiversity within agricultural practices aligns well with the goals of POP3 (Rijksdienst voor Ondernemend Nederland, 2019)

- *CAP-Ecosysteemdiensten (CAP):* The EU's Common Agricultural Policy provides subsidies for farmers that contribute to climate goals and nature restoration. Initiatives such as agroforestry, water management and peat restoration can be supported through this (EU CAP Network, n.d.)

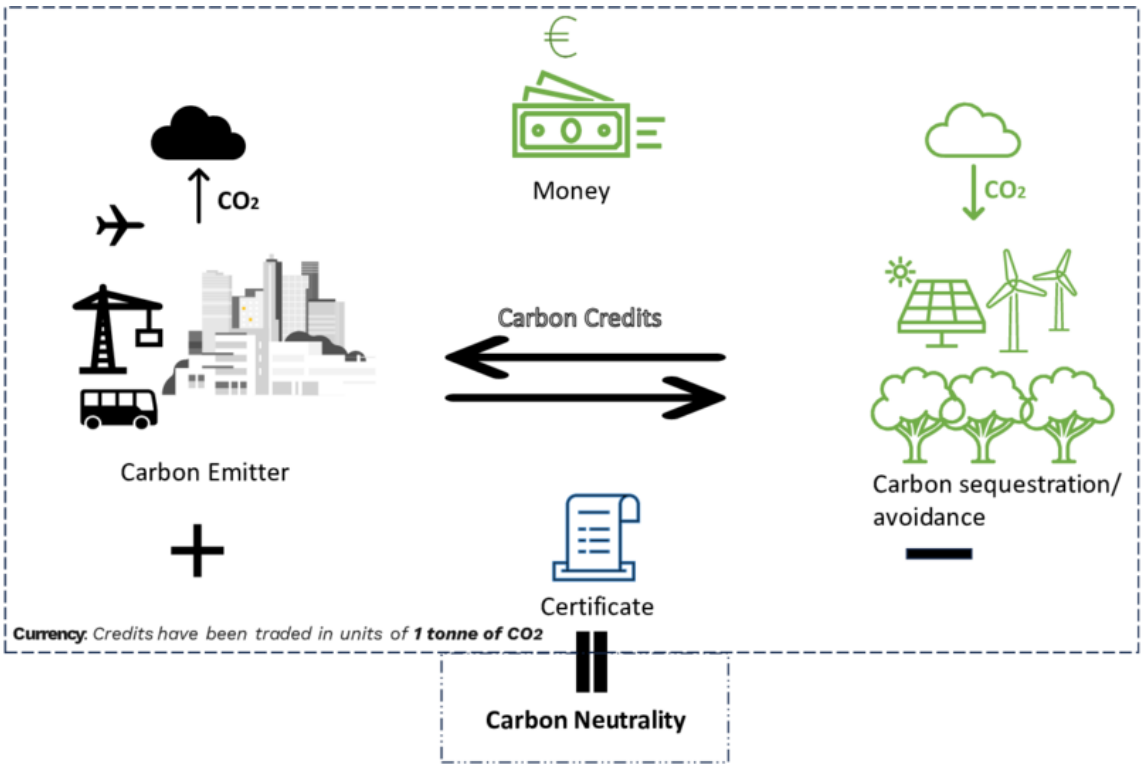

Figure 7: Example of how carbon credit system works (Salma et al, 2024)

3.2 Case Studies

3.2.1 Germany

PaludiZentrale

The PaludiZentrale is a collaborative initiative in Germany that focuses on sustainable peatland management and restoration through the practice of paludiculture. This network involves a range of stakeholders, including a variety of stakeholders such as ministries, universities and institutes. By combining ecological restoration with economic innovation, the PaludiZentrale is aiming to address the challenges of climate change mitigation and biodiversity conservation by working together on finding a solution. Combining sources of knowledge allows for the farmers to build upon each other and help each other in challenges they face, creating a knowledge bank that can be the key to developing paludiculture at a larger scale (Universität Greifswald, n.d.).

MoorFutures

MoorFutures are carbon credits designed to finance the rewetting of drained peatlands in Germany. Thereby, they are promoting the reduction of greenhouse gas emissions and restoration of vital ecosystems. The credits are sold on the voluntary carbon market to individuals and companies seeking to offset their carbon emissions. The funds that are generated are used for specific peatland

restoration projects within the participating federal states. MoorFutures projects are scientifically supervised by local universities to ensure the effectiveness and sustainability of the restoration efforts. By investing in MoorFutures, stakeholders are contributing to climate protection and the preservation of valuable ecosystems, supporting biodiversity and promoting sustainable land management practices (Tanneberger et al., 2024; Forest Europe, 2017).

Paludi-Progress

The Paludi-Progress project in Germany focuses on promoting regenerative agricultural practices among farmers to enhance soil health, increase biodiversity and sequester carbon. Among the key components of the project to promote regenerative agriculture is cattail cultivation. They are well known for their rapid growth and suitability for growing on rewetted peatlands with a yield between 3.58 to 22.1 tons per hectare. Not only does cattail cultivation contribute to carbon sequestration, enhancing biodiversity and supporting water purification efforts, it also has a high economic incentive. Cattails can be used for bioenergy and construction materials (Fens for the future, n.d.; Universität Greifswald, 2023).

3.2.2 Switzerland

Agroscope Rice Experiments

The Agroscope project in Switzerland is investigating the GHG emissions associated with rice cultivation on organic soils. Flooding fields for rice cultivation can reduce these emissions but may increase methane (CH4) emissions. Preliminary findings suggest that cultivating rice on organic soils with a mineral top layer, keeping the water level just below the surface, offers a favorable greenhouse gas balance. Ongoing trials in 2023 are exploring the effects of fully flooded conditions. Insights from Agroscope's study can inform strategies to optimize greenhouse gas balances in similar settings. For instance, adopting practices that minimize methane emissions while preventing CO2 and N2O release could enhance the environmental sustainability of rice cultivation on peat soils. (Wüst-Galley et al, 2023).

3.2.3 Denmark

CANAPE Project

The Creating A New Approach to Peatland Ecosystems (CANAPE) Project is a collaboration between 5 countries in the North Sea Region to restore and preserve wetlands. In Denmark, they explore paludiculture as an alternative and sustainable land use for rewetted peatlands. This initiative includes the first-ever trial of paludiculture in Denmark at Store Vildmose, a large peatland area being rewet. The project converts a former potato field into paludiculture, with a 4-hectare trial site adjacent to an existing raised bog. The key objectives of the project are to learn how to transition traditional agricultural land into wetland farming, to identify wetland crops suited to these conditions, and to develop effective harvesting methods.

The trial is divided into seven plots and features different crops, including Typha (cattail), reed canary grass, fescue, and Sphagnum moss. The trial also explores the production of a range of products from these crops, including:

- **Typha** (used for construction materials, animal fodder, and water filtration) with water level -10 to +40 cm,
- **Reed canary grass** and **fescue** (for animal fodder) with water level -30 to +20 cm,
- **Sphagnum moss** (for horticultural substrates) with water level -15 to - 0 cm,
- **Alder** (used for timber and biochar) with water level -40 to +5 cm.

By cultivating a mix of these crops, a diversified revenue stream can be established, helping to buffer against market fluctuations and enhance economic sustainability. The trial also employed innovative techniques, such as using long hoses for Typha sowing and the Pottiputki tool for planting, while managing plots with varying moisture levels to suit specific crops. (CANAPE - Creating a New Approach to Peatland Ecosystems, n.d.)

3.2.4 Belgium

Grote Beek Valley - Natuurpunt's Paludiculture Project

Natuurpunt, a Belgian nature conservation organization, is investing €2 million to restore 130 hectares of peatland in the Grote Beek Valley through paludiculture, a form of wet agriculture. This initiative involves re-wetting the land by filling drainage ditches, allowing peat soil to absorb more water. The project will reduce CO_2 emissions by approximately 1,000 tons annually. In collaboration with a local farmer, Natuurpunt has cultivated willows, selected for their ecological benefits, such as being pollinator-friendly, water-purifying, carbon-sequestering, and providing rapid growth for the production of biomass energy, animal feed, and ecological insulation materials. This project combines nature restoration with sustainable farming practices, demonstrating the potential for

ecological and agricultural coexistence. (Opstart Paludicultuur Pilootproject, n.d.)

Buffer+ Project - Peatland Conservation and Sustainable Business Models

The Buffer+ project involves several European partners, including Belgium, the Netherlands, France, Germany, and Ireland, focusing on peatland conservation and restoration. The project aims to restore peatlands by enhancing water management and biodiversity while developing sustainable business models for wet peatlands. These models include wet farming, ecosystem service payments, and bio-based peat-free growing media. The project also emphasizes collaboration among stakeholders, including farmers, to develop new crops suitable for wet areas and improve management practices for peatlands. (Vlaamse LandMaarhuispij, n.d.)

ADMIRE Project

The ADMIRE project focuses on sustainable agriculture and wetland conservation in the Kleine Nete region, engaging around 120 farmers in discussions on the impact of wetland conservation and alternative farming methods. The project aims to create viable business models for wet agriculture by fostering collaborations between farmers and other stakeholders. The results from this project are shared with policymakers to encourage broader collaboration and inform policy development on wetland management. The project was successful in fostering collaborations with farmers and other stakeholders; however they continue to develop this in the ongoing project. (Wijns et al., 2023)

Interreg North-West Europe Carbon Connects - Cattail Harvesting

The Carbon Connects project explores innovative biobased products and sustainable land use to promote carbon sequestration. One case study focuses on cattail harvesting, which is being considered as a wetland crop for restoring peatlands and reducing carbon emissions. Cattails are processed into biobased materials such as building products and peat-free potting soil. The project engages various stakeholders to transition from traditional, drainage-based agriculture to wet agriculture, and aims to address technical challenges in rewetting and harvesting cattails. (Meyer et al., 2023)

3.3 Interviews

To gain a comprehensive understanding of the stakeholders involved with Oud Ade, a stakeholder map was developed (see Fig 3). This analysis informed the selection of key interviewees for the research. Given the project's limited timeframe and the primary objective of understanding LvO's current activities at Oud Ade and identifying potential opportunities for the plot, the focus was narrowed to the growers, LvO, and the PolderLab. These entities were subsequently selected for the interview process.

3.3.1 Interview with Sander Roeleveld (Rice grower):

Sander Roeleveld, a pioneer in peatland food forests, emphasizes the importance of observing and working with nature rather than imposing solutions. He highlights the challenges of communication and coordination among stakeholders at Oud Ade, particularly the need for better integration between volunteers, scientists, and the community. Scaling up production presents significant obstacles, including limited storage space, infrastructure, and community acceptance. While profit is not the immediate goal, Sander believes in the long-term potential for the food forest to support local communities and provide opportunities for marginalized youth.

3.3.2 Interview with Joost Lalau (Cranberry grower):

Joos Mentink, a seasoned grower, emphasizes the importance of experimentation and a pragmatic approach to sustainable agriculture. While he acknowledges the value of biodiversity, he believes a balance must be struck with economic viability. He expresses frustration with what he perceives as overly cautious scientific approaches and advocates for a more hands-on, entrepreneurial approach. Joost highlights the importance of communication and community engagement, while acknowledging the challenges of overcoming local resistance to change.

3.3.3 Interview with Matthijs Visser (Board member LvO):

Matthijs Visser, a board member of Land van Ons, emphasizes the organization's focus on ecological restoration over profit maximization. He acknowledges the lower yields and financial challenges faced by farmers on Land van Ons plots but highlights the long-term benefits of organic farming and the importance of government support for sustainable agricultural practices. He emphasizes the need for policies that prioritize ecological value over short-term profits and advocates for mechanisms like carbon credits and ecosystem service payments to incentivize sustainable land management.

3.3.4 Interview with Maarten Schrama (Associate Professor CML, Researcher and project leader at Polderlab):

Maarten Schrama, ecologist and researcher, emphasizes the importance of farmer-led innovation and the need to balance ecological restoration with economic viability. He highlights the challenges of scaling up sustainable agricultural practices, including limited infrastructure and the prevailing focus on maximizing production per hectare. He suggests that Land van Ons should prioritize developing and showcasing scalable, successful models rather than solely focusing on expanding its landholdings. Maarten also discusses the challenges of implementing financial incentives for sustainability, such as carbon credits, and the importance of collaboration among farmers, scientists, and citizens.

3.3.5 Interview with Dr. Pieter Lagerwaard (Anthropologist, Researcher in Oud Ade)

Dr. Lagerwaard, an anthropologist conducting research with University of Amsterdam, highlights the entrepreneurial spirit of the growers and the importance of exploring diverse revenue streams beyond agricultural products. He also emphasizes the importance of community engagement and building trust with local residents. Dr. Lagerwaard concludes by emphasizing the need for a balance between ecological restoration and economic viability and the importance of showcasing tangible results to inspire change.

4. Analysis

4. Analysis

The work of LvO in Oud Ade and the research question are highly suitable for application within the Commonland 4 Returns Framework due to their alignment with the framework's goals of integrating ecological, social, and economic dimensions of sustainable landscape restoration.

4.1 Inspirational return

The inspirational return in the framework highlights the aim of providing hope and confidence, enabling stakeholders to collaborate with relevant and ambitious partners to fuel transitions (Dudley et al, 2021). The inspirational return is particularly addressed by the interviewees. They emphasized the relevance of inspiration in the transition towards more nature-inclusive agriculture. Communication with locals has been underscored by all interviewees as one of the most important requirements for development in the agricultural sector. At Oud Ade, the ability to upscale depends on the willingness of citizens. They have the power to block proposals that harm their environment, thereby limiting the growing capacity of the plot in terms of building structures and developing food forests. Beyond communication being a social return, which will be elaborated upon further in the section of social return, it is essential in inspiring people to contribute to Oud Ade's mission and the broader transition towards nature-inclusive agriculture.

The growers at Oud Ade and the PolderLab are aware of the role they need to fulfil. As Maarten Schrama stated: "Show don't tell." (Appendix 4). The projects that the growers are doing in the PolderLab are noticed on a broad scale: in January a Swiss rice farmer came over to get inspired by the rice growing on peat land, which Sander is doing. This experiment is according to all growers at the heart of the project of Oud Ade and the PolderLab. Although Land van Ons focuses on 'restoration' of the ecosystem, the inspirational return encourages more experimentation. For example, the PaludiZentrale (Section 3.2.1, Germany) highlights how knowledge-sharing can drive scaling up paludiculture. Similarly, the ADMIRE project in Belgium (Section 3.2.4) inspires stakeholders by demonstrating how restoring 130 hectares of peatland balances ecological and agricultural practices. Visible outcomes such as biodiversity recovery and reduced CO2 emissions provide motivational examples. In Denmark (Section 3.2.3), converting farmland into wetlands inspires similar transitions by showcasing how crops like Cattails and Sphagnum moss offer economic and ecological balance.

Therefore, a diverse range of stakeholders should collaborate to develop creative ideas and start experimenting. To foster creativity in developing nature-inclusive agriculture, the board of Land van Ons seeks to cooperate with motivated young farmers who are willing to make the transition. Another

place where creative ideas and starting experiments are developed is in the PaludiZentrale. The knowledge-sharing aspect creates inspiration for scaling up paludiculture (Section 3.2.1).

Joost presents a distinct perspective that emphasises the importance of experimentation to maximise profitability. He advocates for a more dynamic approach, suggesting that traditional methods, can sometimes be overly cautious. According to Joost, there is value in taking practical steps to test innovative ideas and learning from the outcomes, rather than delaying action due to hesitation or prolonged discussions. His viewpoint reflects a sense of urgency, underpinned by the belief that nature is constantly evolving, and opportunities may be missed if action is not taken promptly (Appendix 2).

In conclusion, Maarten challenges the notion that Land van Ons should focus on doubling its land size, viewing such a goal as overly aligned with the traditional idea of continuous growth (Appendix 4). Instead, he advocates for a shift in focus towards inspiring people to drive change. By fostering collaboration, and demonstrating successes, the inspirational return emerges as a crucial element in advancing the transition towards nature-inclusive agriculture.

4.2 Social Return

The social return within the 4 Returns Framework underscores the importance of fostering stronger community connections, building trust, and creating opportunities for meaningful engagement (Dudley et al, 2021). The findings from interviews with growers, volunteers, and stakeholders at Oud Ade illustrate that social returns are integral to the success of the PolderLab and Land van Ons' mission to transition towards nature-inclusive agriculture. The growers at Oud Ade and the broader network of Land van Ons recognise the value of engaging the local community in their work. Joost, for example, frequently educates residents about farming and nature, using open days and volunteer initiatives to deepen the relationship between growers and the community. Such community-building aligns with Section 3.1.3, where CSAs foster shared responsibility and collective action. In the Netherlands, examples like Het Zoete Land (Leiden) and CSA Elsgeesterhof (Voorhout) show how community engagement, such as pick-your-own systems, can strengthen trust and deepen grower-consumer connections. These efforts contribute to a shared sense of responsibility and trust in food production, with Joost describing his approach as “giving back to the community”.

However, as several interviewees noted, building trust is not always straightforward. Dr. Lagerwaard highlighted the initial scepticism and hesitancy of residents towards the project, reflecting broader challenges of integrating new initiatives into established communities (Appendix 5). Overcoming this resistance requires transparency and consistent communication. For example, Maarten observed that open days where locals can see tangible results foster greater trust and understanding. “When people

see the work being done, they understand the purpose and feel connected to it," he explained (Appendix 4). Similarly, international examples like the ADMIRE project in Belgium (Section 3.2.4) illustrate how partnerships among farmers, researchers, and stakeholders enhance collective action, fostering greater collaboration and trust. By bringing people closer to the land, these efforts help bridge the gap between the growers and their neighbours. Collaboration is another crucial component of achieving social returns. The interviews consistently emphasized the need for strong networks between farmers, researchers, policymakers, and community members. Matthijs highlighted the importance of rewarding farmers through mechanisms such as carbon credits, while Sander underscored the need for effective communication to align diverse interests (Appendix 3). For instance, Germany's PaludiZentrale (Section 3.2.1) demonstrates how collaboration among ministries, universities, and farmers fosters community problem-solving. In one example, the integration of CSA into the local network allowed growers to connect with restaurants, schools, and other stakeholders, demonstrating the potential for multi-stakeholder partnerships to strengthen social bonds.

The social return at Oud Ade also creates opportunities for marginalized groups and younger generations. Sander suggested engaging people with limited access to traditional employment opportunities, enabling them to contribute to the land while gaining skills and confidence (Appendix 1). This is echoed in Section 3.1.2, where sustainable peatland agriculture fosters local knowledge networks and creates opportunities for eco-friendly agritourism, enhancing social capital.

In conclusion, the social return at Oud Ade exemplifies the role of community engagement in achieving landscape restoration goals. Oud Ade can succeed in building trust, encouraging collaboration, and creating inclusive opportunities for education and involvement. Therefore, the social return ensures that agricultural restoration efforts are not only environmentally sustainable but also socially transformative.

4.3 Financial Return

In the context of Oud Ade, the financial return within Commonland's 4 Returns Framework takes on a unique character. Prioritizing peatland restoration on a historically exploited site, the primary focus lies on ecological recovery. While direct profit maximization is not the primary driver, exploring avenues for generating income from sustainable land management practices is crucial. This approach seeks to demonstrate the economic viability of restoring degraded ecosystems while providing a modest yet sustainable income stream for those involved in the restoration process. Meeting the basic economic needs of farmers and local communities while balancing food production with peatland biodiversity and ecosystem services is vital for long-term success.

One crucial strategy is tapping into diverse income streams. A key way to do this is by cultivating crops with multiple uses, such as cattails, reeds, and sphagnum moss, as demonstrated by the Paludi-Progress project (section 3.3.1). These crops are not only beneficial for their natural returns but due to their diverse applications, can contribute to a sustainable income for Oud Ade. These applications include construction materials, insulation, animal feed, and peat-free growing media. Furthermore, as the interviews with Sander and Maarten highlighted, exploring value-added products, such as rice vinegar, can increase profits made from the produce and market differentiation. The desk research and interviews confirmed the existence of a market for organic and locally produced goods like these in the Netherlands, particularly near major cities like Leiden, Den Haag, Rotterdam, and Amsterdam, where Oud Ade is closely located and the demand for such products is high (Appendix 5).

However, interviews with the growers and reports analysed from Oud Ade revealed that a major bottleneck for value-added products is the scaling challenges, such as the lack of storage of machinery and processing equipment. This is currently hindering the expansion of financial returns for Oud Ade. This highlights the crucial role of collaboration in building financial returns for projects such as Oud Ade. The theme of collaboration and building community recurred in all three of the research avenues. For example, Sander explained that he could envision a future where he collaborates with another farmer on their piece of land, building small strips of rice growing along the water (Appendix 1). This would enable him to expand his business and income without needing to own more land. The case studies and interviews, including one with Maarten, revealed that many farmers struggle to step outside their traditional farming practices. Therefore, growers at Oud Ade sharing their knowledge could present a valuable opportunity to generate additional profit. (Appendix 5). The farmer does not need to learn how to grow a new crop that they do not have time for; the LvO grower can expand their business, and they both profit from the collaboration.

Collaborating other stakeholders than local farmers is also integral. The desk research showed that there are other initiatives like LvO that are working on the same issues. Building stronger partnerships with, for example, Herenboeren, Lenteland, and Aardpeer can help with sharing knowledge as well as potentially matching up farmers for these collaboration initiatives (Section 3.1.4). Moreover, as discussed with Peter, working with local community centers like Huis van de Buurt, Op Eigen Wieken and Buurthuis De Hoeksteen or hosting workshops and talks at schools, universities or platforms with other farmers can be other ways to generate some financial returns as well as potentially inspiring a new volunteer base to help at the site (Appendix 5).

The results from the desk research showed another significant opportunity for financial gain lies in carbon credit generation (section 3.1.5. and 3.2.1.). The MoorFutures project in Germany

demonstrates how selling carbon credits creates a financial model for peatland restoration while incentivizing sustainable land management (Section 3.2.1). Similarly, Valuta voor Veen rewards efforts to restore peatlands through the sale of CO2 certificates. Raising the water level in peatlands greatly reduces greenhouse gas emissions while restoring biodiversity, with funds being directed toward infrastructure, biodiversity restoration projects, and educational programs (Section 3.1.5). This presents a significant opportunity for Oud Ade to generate revenue from the work they are already doing in sequestering carbon. Actively pursuing government initiatives like Valuta voor Veen and exploring other funding opportunities like grants and subsidies can be crucial inputs for the financial sustainability of the site.

4.4 Natural return

The natural return within the 4 Returns Framework is highlighting the importance to restore biodiversity and improve soil health, which perfectly aligns with one of the main goals of LvO: restoring biodiversity (Dudley et al, 2021). Across the interviews, there have been several shared themes and contradictions regarding this aspect.

Sander emphasizes a minimal-intervention approach, allowing nature to guide the process. His observations show how biodiversity rapidly responds when human activities are aligned with natural processes. He mentioned that after a week already, birds and insects started to return to the site (Appendix 1). Similarly, Joost acknowledged the increase of biodiversity at Oud Ade and how the experiments at the plot have turned out very well for biodiversity (Appendix 2). Matthijs reinforces this focus by mentioning strict ecological guidelines for farmers, such as limiting pesticide use and integrating wood hedges, which further encourage the increase of biodiversity (Appendix 3).

A recurring theme in the interviews is the use of paludiculture as a method for restoring peatlands while enhancing biodiversity. Sander's experimentation with rice cultivation on rewetted land aligns well with this approach, showcasing how agricultural practices can support ecological recovery (Appendix 1). Peat moss cultivation, as discussed by Maarten, plays a key role in creating a spongy environment that stores water, increases biodiversity, and sequesters carbon. Similarly, the cultivation of cattail and reed has been shown to restore ecosystems by providing habitats for diverse species while also improving water quality (Appendix 4). The Paludi-Progress project in Germany further supports this, as cattail cultivation promotes carbon sequestration, enhances biodiversity, and supports water purification, contributing to ecological restoration (Section 3.2.1.). Willow trees, mentioned as biodiversity-friendly in the Grote Beek Valley project in Belgium, provide additional benefits by purifying water, supporting pollinators, and contributing to carbon capture, while peatland rewetting in this region also reduces CO2 emissions and supports biodiversity (Section 3.2.4).

Additionally, the Carbon Connects project in Belgium demonstrates how the use of cattails for carbon sequestration and sustainable materials boosts ecosystem services while reducing emissions (Section 3.2.4.). Together, these efforts emphasize the potential of sustainable farming on peatlands to deliver substantial environmental benefits.

The interviews reveal a shared understanding among stakeholders that monoculture farming is unsustainable for biodiversity restoration. Joost's focus on experimentation with diverse crops, combined with Maarten's emphasis on agroforestry practices, reflects a shift toward more integrated land-use strategies. By promoting crop rotation and mixed cropping systems, farmers at Oud Ade can enhance soil health, support a broader range of species, and create a more resilient agricultural ecosystem. These practices align with the goal of achieving natural returns while ensuring long-term ecological and agricultural viability.

However, there is also some disagreement on the importance of biodiversity. Joost expressed his frustration with what he perceives as the cautious approach of some biologists, arguing for more experimental, action-oriented methods that balance biodiversity with profitability. He emphasizes the need for tangible results by suggesting that biodiversity should not come at the expense of food production and financial stability (Appendix 2). In contrast, Sander takes a more patient, long-term view by focusing on learning from nature and demonstrating sustainable methods without immediate profitability as a goal. Avoiding monocultures and integrating agroforestry practices can help reconcile these goals by enhancing biodiversity without sacrificing productivity (Appendix 1). The cultivation of crops like rice, willow, cattail, and peat moss offers opportunities to achieve both ecological and economic returns (Section 3.2.).

A recurring theme is the inherent resilience of ecosystems when given space to recover. Sander reflects on how natural processes, if allowed to unfold, strengthen over time. Joost's observations about predator-prey dynamics reinforce this idea (Appendix 2). Maarten's concept of "living peat" as a carbon-storing, biodiversity-rich landscape represents a tangible example of ecosystems being leveraged for both environmental and agricultural benefits (Appendix 4). These insights emphasize the long-term potential of nature-led solutions which is central to the Natural Return in the 4 Returns Framework.

5. Recommendations

5. Recommendations

5.1 General recommendations

The success of Oud Ade relies on a holistic approach that integrates inspirational, social, financial, and natural returns. This section outlines the main recommendations of the four returns framework, followed by a statement of the importance of the social return as an overarching factor in implementing the other recommendations.

Inspirational Returns

Central to the recommendation for inspirational returns is the philosophy of 'Show, don't tell.', as highlighted by the interviewees. This mentality goes beyond the notion of talking in circles about what works and what does not. Therefore, the most important step is experimenting and being creative with crops, collaborating with a broad group of people from different fields, and demonstrating that things can be done differently, while keeping in mind that we are living in a changing climate.

Financial Returns

Recommendations for financial returns include a three-pronged approach. Firstly, expanding the cultivation of crops like reeds and cattails is worthwhile. Secondly, exploring collaborations with farmers outside Land van Ons to facilitate the production of value-added products. Addressing scaling challenges through shared resources and collaboration with local farmers can enable expansion without significant capital investment. Lastly, pursuing carbon credit opportunities could provide additional revenue streams.

Natural Returns

In line with the section on financial returns, cultivating reeds and cattails contributes to natural returns by restoring biodiversity. Incorporating willow trees offers further benefits by supporting pollinators, purifying water, and sequestering carbon effectively. Additionally, as Sander and Maarten suggest, cultivating strips of rice on rewetted lands of other farmers primarily used for cattle offers interesting opportunities to grow larger amounts of rice.

Social Returns

Across all of the findings, an area that has been found within all areas that the social component, and engaging with the wider community is a fundamental element to the success of Oud Ade. The social

aspect of engaging with stakeholders outside of the plot to draw in greater expertise and ideas, inspiring other farmers to get engaged with the mission of Land van Ons by demonstrating its success, increasing the outreach to the local community, are all exemplary of the need to increase the social aspects of the project. Extending the regenerative farming network through greater communication with organisations who have similar missions and visions as LvO with projects to extend their wider reach.

A key factor to enable success at the plot of Oud Ade is communication – particularly between growers and the community. Creating goodwill and trust forms the foundation for achieving desired outcomes. As Sander mentioned, scaling up or producing products such as rice requires machinery that can be stored in sheds. However, to realize this, support from the local community is essential. Therefore, maintaining regular contact and engaging the community in the work is crucial. More frequent open days, workshops, and voluntary events could help achieve this. Although a lack of volunteers is not currently a problem – Sander noted that there is not enough work for them at this stage – improving the infrastructure for volunteers, such as providing a shed with a toilet, could be beneficial in the longer term. Again, to realize this, community support is crucial.

5.2 Concrete recommendations

In addition to the general recommendations for LvO Oud Ade, which are directly based on the 4 Return Framework and provide an overview of our findings, more concrete recommendations are beneficial for implementation at Oud Ade. These include best practices from case studies, CSA initiatives, and applications for grants and financing that are relevant for Oud Ade. These recommendations provide practical guidance for future initiatives at Oud Ade. The tables below (Table 2-4) outline the series of opportunities Oud Ade could implement, including: a description of each case, what Oud Ade can take as inspiration, the win or benefit it could provide for Oud Ade, and how it relates to the 4 Return Framework.

Table 2: Best practices from case studies and what can be used at Oud Ade

Case	Explanation	Inspiration for Oud Ade	Win for Oud Ade	Relevance 4-return framework
PaludiZentrale	Collaborative initiative in Germany involving a range of stakeholders (ministries, universities and institutes), sharing knowledge	No network like this in the Netherlands, this is something LvO could (help) start setting up.	Create a knowledge bank that can be used as a tool for growers to implement ecological and financially beneficial practices	Natural, social financial, inspirational returns
Moor Futures	Regenerative agricultural practices focussed on cattail cultivation	Expanding production of cattails, potentially along the edges of the grassland	Cattails can increase the carbon sequestration and biodiversity of the plot and support water purification efforts. The crop has high economic incentive with application in multiple industries	Natural and financial returns
Paludi-Progress	Regenerative agricultural practices focussed on cattail cultivation	Expanding production of cattails, potentially along the edges of the grassland	Cattails can increase the carbon sequestration and biodiversity of the plot and support water purification efforts. The crop has high economic incentive with application in multiple industries	Natural and financial returns
Agroscope Rice Experiments	Investigating GHG emissions associated with rice cultivation on peat	Inspiration to further develop Sander's rice project	Enable expansion of rice growing without increasing GHG emissions	Natural, inspirational and financial returns
CANAPE Project (Denmark)	Paludiculture experiment to learn how to	Typha, Reed Canary Grass, Sphagnum moss and Alder can be	Gain both the ecological benefits of these crops but also have multiple	Natural and financial returns

	transition traditional agricultural land into wetland farming, to identify suited crops, and develop effective harvesting methods.	cultivated alongside each other at Oud Ade to diversify revenue streams and buffer against market fluctuations and enhance economic sustainability	economic application and can therefore diversify incomes for Oud Ade	
Grote Beek Valley - Natuurpunt's Paludiculture Project	Paludiculture with willow trees	Willows can be grown along the edges of the Oud Ade plot, they can be kept low in order not to interfere with views of the community	Willows are pollinator-friendly, water-purifying, carbon-sequestering, and providing rapid growth for the production of biomass energy, animal feed, and ecological insulation materials.	Natural and financial returns
Buffer+ Project	Developing sustainable business models for wet peatlands	Cultivating wetland crops that can be used for bio-based growing media or eco-friendly building materials could provide significant income. Additionally, exploring ecosystem service payments, such as carbon credits or biodiversity offsets, could support financial viability while contributing to peatland restoration	Other ways to diversify income opportunities for Oud Ade	Natural and financial returns
ADMIRE Project	Fostering collaborations between farmers and other stakeholders in experimentation to help inform policy makers	Expansion of cattail growth and this initiative looks into new harvesting methods (though not clearly outlined in public available information, maybe something LvO can request)	Cattails can be processed into sustainable building materials or alternative products such as peat-free potting soil, which is increasingly in demand due to environmental concerns. This can increase economic revenues for Oud Ade	Natural and financial returns
Interreg North-West Europe	Explores use of Sphagnum moss and Typha Latifolia	Expand Sphagnum moss and Cattail production in	Sphagnum moss which is in high demand as a growing medium for	Natural and financial returns

Carbon Connects	(cattail) as potential crops for peatland restoration	more areas of the Oud Ade plot.	orchids and cattails as wetland biofilters or green building materials. These can be revenue opportunities for Oud Ade growers.	

Table 3: CSA initiatives and the lessons to be learned from them

CSA	Explanation	Inspiration for Oud Ade	Win for Oud Ade	Relevance 4-return framework
Het Zoete Land, Leiden	Biodynamic CSA, local community	Share in harvest, become a volunteer	Encourage greater involvement for the volunteer network	Natural returns, social returns
Voedselbos, Benthuizen	Food forest, experimenting and working with different methods, member and non-member activities	Engaging with community, paid memberships, optional seasonal activities for non-paying members, members can harvest every week, training and advice	Explicit activities for paying members and non-paying local visitors	Natural, social financial, inspirational returns
Tuinderig de Spoolderberg, Zwolle	Small garden, participants can grow and harvest themselves	Supply restaurants, volunteer dinner, volunteers get involved with technical and miscellaneous, educational programmes	Engagement with local restaurants to supply food. Develop an educational programme to involve local schools	Natural, social, financial, inspirational returns
Gelukkige Groentes, Malden and Ooij	2 picking gardens, local food production	Pick-your-own subscriptions, courses on gardening, company outings, educational programmes for primary schools	Develop educational programmes, invite local schools and corporate groups for sponsorship	Natural, social, inspirational, financial returns
De Graafse Akker, Den Bosch	Open air community initiative	Subsidised by VSB fund, social bridging funding, community funded, local initiatives	Avail of community develop funds for additional funding	Natural, social, inspirational, financial returns

Table 4: Financing opportunities and grants that Oud Ade can apply for

Financing Opportunity	Explanation	Application for Oud Ade	Win for Oud Ade	Relevance 4-return framework
Valuta voor Veen	Rewarding affords to restore peatlands through the sales of CO2 certificates	Generate additional income through the sale of CO2 certificates, biodiversity restoration by raising the water level	More income for experimentation and innovation	Natural, financial
EU Life Program	Supports projects aimed at nature restoration, climate adaptation and environmental protection	Provides opportunities for knowledge exchange, capacity building, and collaboration with European experts while enhancing the organization's visibility and influence.	More income for experimentation and innovation	Social, financial
POP3 (Plattelands ontwikkelings programma) grants	Focuses on innovation and sustainability in the agricultural sector	Encourages innovation by funding nature-inclusive farming practices and collaborative initiatives with farmers	More income for experimentation and innovation	Social, financial
CAP-Ecosysteem diensten	Provides subsidies for farmers that contribute to climate goals and nature restoration	Provides financial incentives for farmers to adopt practices that enhance soil health and water retention	More income for experimentation and innovation	Social, financial

Concluding Remarks

6. Concluding Remarks

6. Concluding Remarks

6.1 Discussion, Limitations and further research

6.1.1 Discussion

The recommendations outlined in this report are tailored specifically to Land van Ons (LvO) at plot Oud Ade, given its unique context of collaborative grower-researcher partnerships and the challenges associated with cultivating crops on peatland. However, many of the recommendations possess broader applicability. For instance, strategies for enhancing soil health, optimizing water management, and diversifying crop rotations can be relevant to other LvO peatland plots due to their shared ecological and agricultural characteristics. Moreover, certain recommendations, particularly those related to the Community Supported Agriculture (CSA) initiative, such as building strong community relationships, fostering transparency and trust, and developing fair pricing models, have the potential to be adapted and implemented within other social agricultural initiatives across the Netherlands and beyond.

This qualitative research, while grounded in the specific context of Oud Ade, has yielded valuable insights into the interplay of social, ecological, and economic factors crucial for the success of sustainable agricultural projects. Prioritizing in-depth interviews with the growers ensured that the recommendations directly addressed their specific needs and aspirations. However, this focus on the unique perspectives of the Oud Ade growers may limit the direct transferability of certain recommendations to other LvO sites with different grower profiles and priorities.

Despite this limitation, the qualitative approach offered several key advantages. It allowed for a holistic and nuanced understanding of the complex social and ecological dynamics at play, encompassing a diverse range of perspectives from stakeholders across the project. Furthermore, it enabled us to integrate diverse knowledge systems, including both academic research and the valuable experiential knowledge of the growers, into our analysis and recommendations.

6.1.2 Limitations & Further Research

One limitation of this research is its focus on "restoration," driven by the commissioner's needs. This raises questions about the long-term viability of historical baselines in the face of climate change. While valuable, this focus limits exploration of potentially novel crops and agricultural practices not currently common in the Netherlands but potentially relevant in a changing climate. Although this emerged as a theme in interviews, it fell outside the scope of the defined research question. Future research should therefore investigate the impacts of climate change on paludiculture implementation

in the Netherlands and Europe, including exploring potential case studies and examples of climate adaptation from other regions globally.

Another limitation concerns the number of interviews conducted. Due to time constraints, strategic choices were made in stakeholder selection, which may have introduced bias and potentially overlooked valuable insights. Consequently, future research should prioritize expanding data collection through interviews with a broader range of stakeholders, including those outside of Land van Ons.

Moreover, this study focused its case studies on four EU countries with similar socio-economic backgrounds and agricultural regulations to facilitate transferability to Oud Ade. This may have excluded new paludiculture methods or CSA initiatives from other EU or non-EU countries. Future research could examine a wider range of countries, both within and beyond the EU, to identify potentially beneficial approaches.

Finally, the report's recommendations are limited in their practical implementation guidance. Due to restricted information of publicly available information on the case studies, specific implementation steps, timelines, and resource requirements are not fully developed. For example, the crop cultivation recommendations require further research to establish a practical, step-by-step implementation plan. This could be addressed in future research with increased time and funding to acquire the necessary documentation and develop detailed implementation strategies.

6.2 Conclusion

This report aimed to answer the central question: *"How can Land van Ons develop sustainable agriculture on rewetted peatland that balances both ecosystem restoration benefits and economic returns in Oud Ade?*" By exploring this question, it has been divided into three sub-questions concerning research into best practices of rewetted peat farms that have achieved successful business and ecosystem restoration models; an examination of streams of revenue for Oud Ade to implement; and the role of CSA in finding a balance between economic returns and ecosystem restoration benefits.

The analysis based on the 4-return framework highlights the importance of a holistic approach. Striking is the importance of **social return.** Both desk research and the interviews with growers highlight that for the development of the plot of Oud Ade, the social return is crucial for both natural, financial and inspirational return. Trust, collaboration and involvement of citizens serve as the foundation for development of the plot and the willingness of citizens to volunteer, which can contribute to higher harvesting yields. Besides that, collaboration with other farmers or initiatives, including local farmers outside the LvO network and other national regenerative farming organisations,

can provide options to share resources that enable the output of products that can contribute to economic viability, such as rice-vinegar, and encourage greater knowledge sharing. The central idea that needs to be promoted is the vision of 'Show don't tell'. Creativity and experimenting are fundamental in the creation of new revenue streams, which is of importance in a changing climate. Showing people that visit the plot that things work is the best way to inspire other growers to do the same. This can foster expansion of resources and knowledge that will be instrumental in turning experimentation into viable economic endeavours.

Researching other CSA projects in the Netherlands has given an insight into how similar farms have been successful in building revenue models while incorporating the community in a meaningful way. These initiatives have been able to sell produce to local networks, develop paid educational programmes, harvest subscription programmes, and more to generate revenue and encourage greater social inclusion and connectivity from the local communities. Again, it is evident that to achieve the goal of developing fruitful financial models for initiatives such as LvO, engagement with the local community is essential.

This report aims to help LvO, specifically Oud Ade, to continue experimenting with new developments in the realm of crops, CSA initiatives and possible grants of carbon credit projects, that have already proved to be successful in other cases. A holistic approach of these both inspirational and practical recommendations has been formulated and could form a foundation for new projects that balance both ecological restoration and environmental viability. The recommendations aimed to contain the element of environmental restoration as a central goal, as the main goal of Oud Ade still concerns the environment as the dominant factor rather than economic viability.

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Appendix

Interviews:

1. Interview Sander (Rice grower)

We found Sander working among his rice fields at Oud Ade and settled into the shed at Oud Ade for the interview. The shed was equipped with gardening tools, stacks of crates, working clothes, and a coffee maker powered by a generator. While working as a conservation ranger volunteer, Sander became interested in peatland areas. He followed several courses about food forests and developed for his final pitch a food forest as a farmer in Aarlanderveen. He was the first to embrace the idea of a food forest on peat soil, whereas in most cases, such projects are located on higher grounds. Although his idea was well received, conflicting ideas with the municipality and existing policies slowed the experiment. In the meantime, Land van Ons bought the plot of Oud Ade, and together with Maarten Schrama – a former teacher of Sander – they started experimenting with producing peat-grown food on ridges in November 2022.

For Sander, every day is different, depending on the seasons, the crops, visitors, and unpredictable weather. However, his work is always outside and in collaboration with nature. He tries to influence the land as little as possible and observes what happens on the ridges. According to Sander, this is one of the biggest differences between him and the methods of conventional farmers. Instead of immediately seeking mechanical or chemical solutions, he prefers to observe and ask: “Where is the problem coming from, and how can I prevent it?” He focuses on understanding the root cause and seeking ways to support the process naturally, rather than turning the problem into a business model.

During the period Sander worked at Oud Ade he saw various developments in the circulation of board members, scientists and volunteers, who all worked separately, which made the communication with Land van Ons harder. The presence of Noortje helps with coordinating and connecting the different individuals, which contributes to better communication. When there is no agreement in the interests of individuals, it can end up working against each other: “If a group of 50 people is visiting during the breeding season, it has an impact on the ecosystem.” Also, the interaction with the community of Oud Ade has developed. Sander stated the importance of goodwill among the citizens and municipality: “Since you will always be the outsider, you have to be careful. Only a few wrong moves, and you are 2-0 behind. There are always people afraid of change, and trying to criticise what you are doing.”

Scale is a big obstacle for the future of Oud Ade, as stated by Sander. The expectation is that they scale up in a couple of years. However, the storage area and the availability of electricity and machinery are essential. If this is opposed by the community or municipality, or there is not enough funding available, upscaling is impossible. As long as upscaling is not possible, a lack of volunteers is not the problem. Although volunteers are of high value, in this phase of the food forest, too many people at the plot can hinder natural development. Moreover, there is not enough work available at the moment. In the future, Sander sees the possibility for young people who are distanced from society to get involved in the food forest, but for now, there is not enough work to offer them.

As long as the scale of the plot remains the same, profit-making is not of relevance to Sander. Experimenting and showing that the food forest and rice growing works, is the main goal at the point. Together with Leiden University and other growers there are developments on the plot. But at this moment no wine farmer is willing to invest in grapes for just 100 liters of wine. It could be interesting to have machines which are located in stables of farmers around the plot, but as long as there is no land available, the plot can provide friends and neighbors with products, but profit-making is not relevant at this stage.

Nevertheless, Sander is not pessimistic. Regarding the biodiversity, already after a week Sander saw things are changing. The birds and insects that settle down show the resilience of nature. “We should be aware of the impact we have and recognize that nature has already figured it out perfectly; if we let it do its job, everything becomes stronger. That gives me hope, but I already knew it.”

2. Interview Joost (Cranberry grower)

Joost walked enthusiastically into the shack telling about the work he has done this morning. He was excited to tell us about everything he as a cranberry farmer is doing at the plot of Oud Ade, but also in other regions in The Netherlands: Alphen aan de Rijn and Terschelling. After forty years of other activities, four years ago he switched to growing all kinds of plants in his own food forests, and the growing of cranberries. For one and a half year he has been connected to Land van Ons. He saw developments at Oud Ade through the increase of biodiversity on the plot, which has been accomplished by the work of Sander. He describes it as a system: the rise in flowers and birds increases the amount of mice, that are eating his cranberry, fortunately, the mice are eaten by the owls again.

Although Joost confirms the development of biodiversity, sometimes he does not always fully agree with the policy of Land van Ons. Joost for example wants to help nature by digging in ditches to protect fish from freezing to death during harsh winters. He likes to spar with the other growers about the developments at the plot. "I have adopted a more analytical approach: what is the yield per square meter? I seek to understand every detail with precision".

As a trader, he knows how important communication is. In Oud Ade he knows lots of people and also the contact with other growers at LvO is good. He wants to engage the neighborhood, schools, and volunteers who are willing to help at the plot. When the weather is good, there are lots of volunteers to help, but on rainy and cold days people want to stay inside. He also admits the problem that sometimes the neighbors are opposing the development at Oud Ade, which frustrates him.

Experimenting with new plants and fruits gives Joost energy. That is why he orders plants from Greenland to see whether the plants are able to grow at Schiermonnikoog as well. He is looking for things that helps him with making profit. Although biodiversity is important, as long as it prevents from production of enough food and money, it is not going to work.

Joost sees the future with a mix of optimism and frustration. Some aspects are very promising, while others are not. He feels that many biologists are too cautious, and focused on the traditional path. "Let's experiment, observe, and see what works" he says. Some people have become obsessed with biodiversity, and I can't follow that mindset anymore. They want to act, but then hold back. They're too careful". Joost believes that nature is changing, and if we keep talking in circles, it will be too late. "We need to take action now". Some biologists share their desire to act but feels hindered by too many intermediaries. Joost prefers a one-on-one approach. "What works, and what doesn't? I do things that aren't always allowed, and I enjoy that."

3. Interview Matthijs (Board member LvO)

Matthijs Visser is one of the board members of Land van Ons. He works three to four days a week voluntarily on the business management and contracts of the 24 plots of Land van Ons. Matthijs highlights that the focus of Land van Ons is not on profit-making, but on the restoration of biodiversity. Due to this focus, there are strict rules farmers must act on, regarding the use of pesticides. Besides that, Land van Ons implements various measures, such as wood hedges and experiments with water

levels, to encourage the increase of biodiversity on its plots. As a downside of this, in the short term, the yield on the plot will decrease due to a decrease of areal. After two years, when farmers receive a SKAL certificate, the prices of their product rise because they receive the label 'biological'. Generally, the yield for farmers is lower at the plots of Land van Ons since they receive less money for their products. However, Land van Ons compensates for that by asking for lower rents than conventional farmers are paying for their lands. Moreover, biological farmers receive European funding for producing biological food.

Land van Ons rents out its plots to both farmers who already have experiences with biological farming and young farmers who are new in the field. If possible, they offer their lands to young farmers motivated for biological farming. However, sometimes there is already a prospective tenant for a piece of land when Land van Ons purchases it. Often, this leads to a collaboration between the prospective tenant and Land van Ons. In this case Land van Ons financially helps the prospective tenant and set agreements for the use of the land. This can be young people, but also farmers that already own land in the area.

Within three years, the board of Land van Ons aims to double size of Land van Ons. Although this would be an accomplishment for Land van Ons, this is relative to landowners such as ASR who own a lot of the Dutch arable land. Therefore, together with initiatives such as Aardpeer, Lenteland and Herenboeren, they do not aim to be the biggest stakeholder, but they try to provide an example of how agriculture in the Netherlands can be done differently. Hopefully, this can motivate for example ASR and churches that own land, to incorporate sustainability as a requirement for farmers to use their land to produce their food.

Land van Ons is together with Aardpeer, Lenteland en Herenboeren an important actor opposing policies created in The Hague. According to Matthijs, the Dutch government is lacking in soil policy and fair pricing of land. Without strong governance, a major transition towards biological farming is impossible. Matthijs illustrated: "If the land goes to the highest bidder instead of the best bidder, organizations like Land van Ons have less of a chance because we are not focused on maximizing profits. We are doing the best we can with great enthusiasm, but making a large-scale transition is very difficult within the current system. We can take action, farmers can take action, but without government involvement, this major transition will not happen."

At this moment profit making is not the focus of Land van Ons. However, Matthijs mentioned that generally, large-scale biological farmers perform better financially than conventional farmers as they do not have fertilizer costs. Therefore, he does not rule out the possibility of a profitable model for

organic farming in the future. Two pathways that can help in the transition are true pricing mechanisms and rewarding farmers for the positive actions they take, by implementing carbon credits, biodiversity credits and EU landscape management subsidies.

In our last question we asked Matthijs where he sees Land van Ons in ten years. He laughed and said: “The ideal scenario is that we have made ourselves completely redundant. However, honestly, I don’t expect that to happen. The plan for the next three years is to double our land, and beyond that, the goal is to

4. Maarten Schrama (Associate professor CML, director of Polderlab)

Maarten Schrama, an associate professor at CML and the director of Oud Ade's Polderlab, provided valuable insights into the challenges and opportunities of sustainable agriculture on peatlands. With expertise in biodiversity, including what he refers to as its "dark side" (e.g., mosquitoes and crayfish), and the future of agricultural landscapes, Maarten explained how the Polderlab serves as an experimental platform for innovative land-use practices. He stated, “The Polderlab is really about how to sustainably do agriculture in a country that's already below sea level, and will be increasingly below sea level.”

The Oud Ade plot, purchased by Land van Ons in 2020, serves as a unique laboratory to test ideas for balancing ecological restoration with agricultural productivity. Maarten stressed the importance of working closely with farmers to ensure the project's success, saying, “If you have great ideas, if you put researchers on it, usually it will not become a success. You need farmers to make whatever business idea you have into a success.” Farmers at Oud Ade are trialling diverse approaches, including rice cultivation, agroforestry, cranberry farming, and managing waterways for biodiversity. Some concepts, like cultivating a "living peat" landscape that stores carbon and water, represent bold steps towards sustainable land management.

Maarten highlighted the practical and logistical challenges facing these efforts, especially the need for proper facilities and economies of scale. He explained, “The facilities are always a problem. You can’t develop anything in the Netherlands because there’s no way you can build a little cottage or something—that’s a huge impediment for the farmers.” He also described how scaling up these innovations is complicated by the current agricultural paradigm, which prioritises maximum production per hectare. Maarten noted, “Farmers are proud of their maximum production per hectare—that’s the consensus. There are a lot of people who think otherwise, but they don’t dare to say it out loud.” The Polderlab's "show, don’t tell" philosophy was another key point. Maarten

explained, “The whole point of the Polderlab site was that we do a ‘show, don’t tell’ policy, where you just show people what is possible rather than talk about it for a very long time.” This approach has successfully attracted interest from diverse stakeholders, including the Ministry of Agriculture, provincial governments, and Rabobank. However, Maarten cautioned that demonstrating potential is only the first step: “You can develop a business model, but if the concept doesn’t work, it’s nonsensical.”

He expressed mixed feelings about Land van Ons' organisational strategy, suggesting they could focus more on inspiring scalable concepts rather than expanding their landholdings. Maarten remarked, “If Land van Ons wants to make a difference, they need to deliver a number of inspiring concepts that work. You don’t need to necessarily scale up yourself.” He also pointed out the inherent contradictions in the organisation’s goals, saying, “The premise of the organisation is to attack the idea that everything needs to be based on continuous growth, yet they base their idea of their organisation on continuous growth.”

Regarding financial incentives for sustainability, Maarten discussed the challenges of implementing mechanisms like carbon credits and ecosystem service payments, highlighting the Valuta voor Veen initiative which is similar to the German MoorFuture project. He described the potential of carbon sequestration on peatlands but noted, “Developing the methodology for something like this is crucial, but it’s endless paperwork, and there’s no money in jumping over these hurdles.”

Maarten concluded by emphasising the need for collaboration and creative thinking among farmers, scientists, and citizens. Reflecting on the role of Oud Ade as a space for innovation, he noted, “The Polderlab allows us to have an open chat with different people—believers and sceptics alike—and that’s what makes it special.” While acknowledging the long road ahead, he remains optimistic about the project's potential to inspire change in Dutch agriculture. “If you believe in some idea, you just have to show it, and let people take the conclusions themselves.”

5. Dr Pieter Lagerwaard (Anthropologist, researcher in Oud Ade)

Dr. Pieter Lagerwaard began by sharing his academic and professional background. As an anthropologist, he has conducted fieldwork on topics ranging from migration in India to financial intelligence in the European Union. Recently, his focus has shifted to sustainability and the Anthropocene. His involvement with Land van Ons began as a volunteer, where he worked as a correspondent writing articles and later as the secretary of the parcel team for Oude Ade. He started as a volunteer three years ago, and slowly rolled into this position in the core of the team. Now a lecturer at the University of Amsterdam, Dr Laegerawaard studies the Polderlab through an interdisciplinary lens.

Discussing his research, Dr Laegerawaard described his approach as inductive. Instead of testing hypotheses, he prefers to go into the field, moving back and forth between theory and empirics. His current focus is on the notion of success, which he views as a "multiplicity." Success, he noted, means different things to different stakeholders. For growers, success might be tied to financial stability and viable produce, while for scientists, even failed experiments can yield valuable data. He emphasised this contrast, as for the growers, if an experiment like cranberries or rice fails, it may not be perceived a success. But for scientists, failed experiments still provide data. Dr Laegerawaard praised the entrepreneurial spirit of the growers, describing them as adaptable and experimental. He observed that they are creative, throwing out several lines and see which ones work. He pointed to their efforts to explore diverse revenue streams, including social media, partnerships with municipalities, and collaborations with restaurants. He also noted that economic returns don't have to come solely from agricultural products. He suggested we think about attaching to other companies, such as HEMA or university restaurants. This way, growers don't need to build their own infrastructure but can take a lift from existing models.

Volunteering, another area of interest for Dr Laegerawaard, has evolved significantly since he joined Land van Ons. When he began, the organisation was smaller, and roles within parcel teams were not clearly defined. Over time, these roles have become more institutionalised, but attracting younger volunteers remains a challenge. He remarked that most volunteers are pensioners with ample time and resources. LvO can sometimes struggle to attract young people, but utilising platforms like TikTok or Instagram could help engage a younger audience. Dr Laegerawaard also spoke about the importance of community engagement in Oude Ade. When Land van Ons purchased the plot, local scepticism was evident. Over time, personal connections, such as those fostered by Marga, a local

resident involved in community-supported agriculture, have helped build trust. However, he noted that initial meetings with the community could feel sometimes a little tense, though they often ended on a positive note.

Reflecting on the broader challenges and opportunities for Land van Ons, Dr Laegerawaard highlighted the need to balance ecological restoration with economic viability. “What does maximum mean in this context?” he asked, suggesting that stakeholders should consider trade-offs rather than purely aiming for maximisation. He also encouraged exploring innovative ways to generate income, such as leveraging partnerships with larger organisations or utilising existing networks. In closing, Dr Laegerawaard emphasised the value of tangible results. People can tend to be sceptical until they see it, and advocating for a “show, don’t tell” approach can inspire change. He expressed hope that the team’s efforts would succeed, noting the potential of the Polderlab as an experimental space to demonstrate new possibilities for sustainable agriculture.