

Participation: a key to connecting Dutch farmers and policymakers

Case study for improving farmers' use of climate adaptive measures for flood events in Dutch rural areas.



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Abstract

The implementation of climate adaptive measures in Dutch rural areas is needed to combat the impacts of climate change however due to a lack of consensus the adoption of these climate adaptive measures is hindered. Key stakeholders in this matter include farmers in the Dutch rural areas and policymakers. Together, they need to work towards implementing climate adaptive measures in Dutch rural areas. Previous research indicates that participation plays a significant role. However, effective participation remains elusive, preventing collaboration between both parties. Farmers encounter various barriers and enablers related to participating in implementing climate adaptive measures. These barriers and enablers were assessed among 15 Dutch farmers. The research results highlight five key themes from the overview of experienced barriers and enablers: financial resources, vision for the agricultural sector, engagement/fragmentation, distrust, and farmers' motivation. Among these themes, farmers' experience of distrust emerges as an overarching theme. Addressing distrust through participation requires breaking existing patterns among policymakers and redefining their roles alongside farmers in this integrated issue. Furthermore, strong motivation among farmers significantly influences the implementation of climate adaptive measures. This factor operates independently of the participation process and provides new insights for implementing climate adaptive measures.

KEYWORDS

Farmers, rural areas, climate adaptive measures, public participation, flood adaptive measures, policy implementation, barriers and enablers

Acknowledgment

You are reading my master's thesis on participation: a key to connecting Dutch farmers and policymakers, with which I finalize my master's degree in Spatial Planning at the Radboud University in Nijmegen.

The process of writing this thesis has been quite a challenge. A challenge that I can reflect on with various emotions. But above all, I look back on this as a rewarding process. A process in which I have developed my research skills, scientific writing abilities, and generated insights. It was also a process in which I delved into a completely different aspect of spatial planning and policy: the agricultural side. And by that, I don't just mean the formal agricultural policy; I mean the human side—the perspective of the farmers. In my thesis, I had conversations with a total of 15 different farmers. These discussions took place either on their farms or around their kitchen tables. This experience not only allowed me to write a master's thesis but also provided valuable insights from these farmers. They shared with me the human side of the farmer's story, which involves emotions and family dynamics. I am grateful for these insights. I would like to extend special thanks to the farmers who participated in this research for their hospitality, their perspectives, and their personal stories. Additionally, I want to express my gratitude to Corinne Vitale for supervising my thesis and for the conversations and support during the writing process. Lastly, I appreciate the collaboration with my internship company, where I received valuable support and enjoyed working with my colleagues.

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Summary

The climate poses challenges for the Netherlands, particularly affecting rural areas. The most significant impacts are observed in the Dutch river region, located in the provinces of Noord-Brabant, Overijssel, Gelderland, Utrecht, and Zuid-Holland. To adapt to these climate effects, Dutch rural areas must focus on implementing climate adaptive measures for flood events. Achieving this involves collaboration between government policymakers and farmers, who are the landowners in these vulnerable regions. The implementation of climate adaptive measures necessitates a well-structured participatory process among these stakeholders. A problem for the implementation of climate adaptive measures in Dutch rural areas is experienced barriers and enablers in the participation and implementation process of flood adaptive measures by farmers. This study aims to understand these experienced barriers and enablers of the participatory process in the context of implementing climate adaptive measures for flood events in Dutch rural areas. Therefore, this research tried to answer the following research question:

'To what extent and how can farmers' participation support or hinder the implementation of climate adaptive measures for flood events in Dutch rural areas?'

To answer this research question, a theoretical framework is created based on a literature review. To elaborate the theoretical framework, interviews were held with 15 Dutch farmers located in the provinces of Noord-Brabant, Overijssel, Zuid-Holland, Gelderland, and Utrecht. This research used a deductive approach as a research strategy and used a qualitative research method. The research led to the following results.

The research revealed that the experienced barriers and enablers in participation in the implementation of flood adaptive measures influence the actual implementation of these measures. Firstly, financial resources occur to influence the implementation of climate adaptive measures in Dutch rural areas. Lack of consistency concerning governmental support is experienced by farmers. This erratic and inconsistent support brings a lot of uncertainties for farmers. Secondly, due to inconsistent formulated policies, farmers are feeling anxious for the future. Which leads to no perspective or vision for Dutch farmers concerning climate adaptive measures. Thirdly, poor information dissemination accelerates these concerns by farmers. There is no uniform governmental body that challenges farmers to establish contact with the government. The fragmentation of the governmental bodies of the Netherlands leads to farmers feeling like pawns being shuffled back and forth. This ultimately leads to distrust among farmers. Distrust hinders the participation process for the implementation of climate adaptive measures for flood events in Dutch rural areas. Without trust, there is no base to start participation with Dutch farmers for the implementation of climate adaptive measures. The gap between farmers and policymakers widens, making conversations increasingly difficult. Nevertheless, according to data the implementation of flood adaptive measures still could occur because of the strong farmers' motivation. Farmers' motivation plays a significant role in the implementation of climate adaptive measures for flood events in Dutch rural areas. A distinction between farmers' motivation is made by intrinsic motivation (motivation farmers feel to enhance climate adaptation for the benefit of the environment) and indirect motivation (motivation farmers feel to enhance climate adaptation for the benefit of other purposes). So, the participation process supports the implementation of climate adaptive measures in Dutch rural areas. However, due to strong farmers' motivation even without participation processes, farmers still implement climate adaptive measures in Dutch rural areas.

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Chapter 1. Introduction thesis

1.1 Introduction to the research field

Climate change is one of the biggest topics in every environmental report or plan nowadays. Two fundamental strategies have emerged to address climate change: climate mitigation and climate adaptation. These are two distinct approaches to addressing the environmental challenges that threaten our planet. Climate mitigation is defined as “making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gases into the atmosphere” (European Environment Agency, 2023). The focus of climate mitigation is based on reducing the sources of greenhouse gas emissions by a set of actions and strategies that prevent these emissions in the atmosphere (European Environment Agency, 2023). Climate adaptation is defined as “anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause, or taking advantage of opportunities that may arise” (European Environment Agency, 2023).

Climate change poses serious challenges for Europe and the world, affecting their inhabitants, communities, and infrastructure (IPCC, 2018). Climate change results in widespread and partly irreversible impacts on human and natural systems, especially because due to increasing extreme weather events, flood events will occur more frequently (Calvin et al., 2023). Climate change, as well as the more frequent occurrence of flood events, is evident from the synthesis report - of global climate research - that concludes the sixth cycle of the Intergovernmental Panel on Climate Change, now referred to as IPCC (Calvin et al., 2023). Due to climate change and the intensification of global warming extreme precipitations are expected (Tabari, 2020).

Therefore, there is a need to increasingly adopt strategies to cope with the effects of extreme weather events like flooding. These flood occurrences tend to become less predictable and become more extreme causing damage to food production, creating unsafe living areas, and destroying highly valued ecological areas (Panagoulia et al, 1997). Measures are needed to ensure safety for people against flooding, as well as food safety. This thesis does not focus on the actual implementation of technical measures but rather on the underpinning processes. These include both enablers and barriers to participation in the implementation of climate adaptive measures.

Intervening in the physical environment is a key aspect of climate change adaptation, which requires spatial planning at the local level (Biesbroek et al., 2009). According to a study examined by Climate Adaptation Services (CAS) municipalities have taken significant steps in recent years to combat flood events. These steps were mostly taken in the urban environment, but what often lacks is the link with rural areas. Rural areas are missing in environmental visions, urban areas are the focus of these documents nowadays. In the case of rural areas, flood events can have adverse effects on farmers because flood events can physically damage crops, delay planting and harvesting, restrict root growth, and cause oxygen deficiency and nutrient loss (Li et al., 2019). Flood events become relevant in the field of crop farming since farmers are directly confronted with the consequences and farmers are expected to take measures for climate adaptation. Those most affected are river regions of the Netherlands, these regions are placed in the provinces Noord-Brabant, Zuid-Holland, Gelderland, Overijssel, and Utrecht in the Netherlands.

According to the ‘klimaatwet’ of the Netherlands, which aligns with the Paris Agreement, there is a target to reduce greenhouse gas emissions by 55% by 2030, compared to 1990 levels (Ministerie van Infrastructuur en Waterstaat, 2023). This agreement puts a lot of pressure on the agricultural sector. Farmers experience the negative effects of extreme flood events caused by climate change while being dependent on the weather for the quality and quantity of their yield (Aydinalp et al., 2008). The

dependence on external factors such as weather asks for support to overcome uncertainties, this support needs to occur from policymakers. Because of a combination of these high pressures and insufficient support, considerable conflicts between farmers and policymakers occur more frequently (Zhang et al., 2010).

1.2 Problem statement

Dutch farmers are affected by climate change effects and extreme weather events; climate change affects agricultural production, which in turn affects the prices and eventually the trade of these products. Policies on farming, land use, and climate change revolve in direct influences on the income of farmers. Farmers can limit the adverse impacts and reduce the impacts of extreme weather events by implementing climate adaptive measures for flood events. While farmers are affected by the climate change crisis because this has implications for the yield of their harvest, they might still have a significant influence in reducing the impacts of the climate crisis by implementing climate adaptive measures for flood events. This can enhance the resilience and sustainability of the environment.

However, while farmers are called to be adaptive to extreme flood events for themselves and to face the climate crisis, they need support to make this happen. Implementation of climate adaptation measures for flood events in rural areas requires good participation of farmers to increase their involvement in the process and support for new ideas (Mumford et al., 1988). Despite the participation of farmers has been highly advocated, this is still poorly implemented in practice. Improving farmers' participation in implementing climate adaptive measures for flood events is key to achieving multiple sustainable development goals (Vamuloh et al., 2020).

One of the problems is, Dutch farmers are experiencing barriers in the participation process. The Netherlands is undergoing significant changes with the formation of a new cabinet. Changes in rural areas are under scrutiny due to the opportunities for climate adaptive measures, given the space available in rural areas. Additionally, farmers have been in the news for years due to unrest in the agricultural sector (Van Gaalen et al., 2024). Different research shows barriers for farmers. A barrier could be mentioned as an unlikely behavior experienced by an individual toward climate adaptive measures for flood events (Ajzen et al., 1980). Some of the barriers experienced by farmers are lack of financial resources, lack of knowledge, poor information dissemination, and lack of time to get involved in participation processes (Howat et al., 2001; David et al., 2022). These experienced barriers influence the implementation of climate adaptive measures for flood events (Zhang et al., 2010). The barriers and enablers that farmers experience are of significant importance when investigating the participation of farmers in this field.

Participation is of key importance in decision-making underpinning flood adaptation measures. Participation facilitates the exchange and integration of information (Stasser, 1987), reduces resistance to change, and promotes commitment to decisions (e.g., King, Anderson, & West, 1992). Additionally, participation fosters learning through the acquisition, sharing, and the combination of knowledge (Edmondson, 1999). Farmers' participation processes need to be intentionally, specifically, and thoughtfully designed and implemented to engage stakeholders and enhance dialogue (Offenbacker, 2004). By excluding these key stakeholders, implementation of climate adaptive measures for flooding in Dutch rural areas might fail (Baker et al. 2012).

1.3 Research aim and research question

The empirical focus of this research is on rural areas in the Netherlands with distinction made in soil types which creates two cases for this research, namely cases on sandy soils and cases on clay soils. Soil qualities have synergies with cropping patterns, the ability to store water, and different characteristics and qualities that are important for climate-adaptive farming practices (Wezel et al., 2013). Therefore different soil types create the base of the focus of this study, which results in Dutch farmers participating in this research scattered in sandy soils and clay soils located in the provinces Noord-Brabant, Gelderland, Overijssel, Utrecht, and Zuid-Holland. These flood-prone areas are interesting also because they do cross the borders of several provinces, water authorities, and municipalities.

This research aims to understand barriers and enablers for the participation of farmers in decision-making for climate adaptive measures for flood events in Dutch rural areas. The main research question is:

‘To what extent and how can farmers’ participation support or hinder the implementation of climate adaptive measures for flood events in Dutch rural areas?’

To answer the main research question, a literature review of the participation process will be conducted. This results in an analytical framework comprising the potential types of participation in rural areas and the barriers and enablers that might influence farmers' participation and consequently implementation of flood adaptation measures. Subsequently, the role of participation in the implementation of flood adaptation measures and the factors that determine their adoption by Dutch farmers will be evaluated. This research will be complemented by interviews conducted with farmers.

To answer the main research question the following sub-questions are drafted:

1. How is participation in climate adaptation defined and how can it be achieved?
2. What are possible barriers and enablers in the participation processes according to the literature?
3. How can participation contribute to the implementation of climate adaptive measures according to the literature?



1.4 Relevance of the study

This research aims to contribute to the existing knowledge and scientific literature about climate adaptive measures in rural areas of the Netherlands. The following two sections explain the scientific and societal relevance.

1.4.1 Scientific relevance

The impacts of flood events are intensified due to population growth, economic growth, and urbanization (Mitchell, 2003). According to Janetos (2020), rural areas seek to adapt to the impacts caused by flooding to reduce the risk of future impacts. Different research provides an overview of the impacts of flood events caused by climate change. Research offers insights into the loss of crop production due to flooding. To understand crop losses, various tools are employed to quantify the actual yield-based crop loss (Kim et al., 2023; Li et al., 2016; Chen et al., 2019). A more specified overview done by the research of Claessens et al. (2008) gives insights into the environmental impacts of flood events in rural areas in the Netherlands. These researches provide insights in the actual damage in rural areas due to flood events.

Over the past decades, increasing attention has been paid to the participation process; public participation leads to greater citizen involvement, helps social considerations in governmental decisions and enhances the accountability, and thus acceptability of environmental decisions and implementations (Lee et al., 2003; Wirth, 1996). The research examines how active participation of civil society is crucial for the implementation of adaptive measures for flood events in rural areas (Lee et al., 2003; Marzuki, 2015; Simonofski et al., 2017; Petkova et al., 2002). To support implementation of these measures a successful participation process is needed (Baker et al., 2012). Lack of participation occurs in the case study done by Kühne et al. (2013). The study done by Kühne et al. (2013) gives insight into barriers experienced by farmers resulting in a lack of participation, which has a role of hampering the realization of climate adaptive measures for flood events in rural areas.

Different theories on participation have been used when researching participation, with the ladder of Arnstein as frontrunner. The ladder of participation shows different rungs on a ladder that identify increasing levels of participation (Arnstein, 1969). This ladder is extended by a study done by Mees et al. (2019) into an equivalent ladder: the ladder of government participation. Besides rungs of participation level, the ladder involves corresponding roles of government in community initiatives (Mees et al., 2019). Another research has been done by Uittenbroek et al. (2019) on the practical use of public participation. This study discusses the importance of the input of citizens to make the participation aspects insightful, by using local expertise of citizens (Uittenbroek et al., 2019). Uittenbroek et al. (2019) use a framework to measure the influence of participation by connecting the participation process to the objectives of participation. The theory of Uittenbroek et al. (2019) is focused on the implementation process instead of the participation process. So for the sake of this thesis, I join the scholarship of the theory of Mees et al. (2019) and Arnstein (1969) to investigate the participation process. The theory of Mees et al. (2019) gives a clear insight into the roles of policymakers within different styles of participation, which shows the importance of participation for the implementation of climate adaptive measures.

To give insight into the reasons for the lack of participation of farmers, understanding the barriers and enablers experienced by farmers in the participation process for the implementation of climate adaptive measures is needed. To get a better understanding of barriers and enablers experienced by farmers different theories are used. Theories focusing on barriers and enablers of farmers in the participation process are retrieved from three different studies developed by Howat et al. (2001), Kühne et al. (2013), and Baker et al. (2012). Research shows that the implementation of effective policies for climate

adaptation is at risk and shows barriers for governments like lack of information dissemination, local expertise, financial resources, and political support (Baker, et al., 2012). Besides these barriers, the lack of clear roles and responsibilities occurs to be a problem affecting the effective implementation of climate adaptive measures (Baker, et al., 2012). The research done by David et al. (2022) and Feliciano et al. (2014) focuses on barriers and enablers experienced by farmers in the context of implementing climate adaptive measures. For a good insight into this thesis, both theories done by David et al. (2022) and Feliciano et al. (2014) will be used to generate a framework for analyzing the data from interviews. This thesis will provide insights into the barriers and enablers experienced by farmers during the participation process for implementing climate adaptive measures in Dutch rural areas.

Research done by Hassink et al. (2016) shows the relationships between socio-demographic, economic, and geographical characteristics of farmers and the participation rate in multifunctional activities. This research focus on the impacts of these three factors in the participation process. And thereby proving the positive impacts of these factors on the number of participating farmers. What is lacking in this research is an understanding of why farmers make these decisions. Another research done by Klandermans et al. (2002) tested the assumption that a sense of collective identity stimulates participation in collective action. This research shows a sense of collective identity appeared, but this research only focussed on participating in collective action with protesting manners. Therefore, the research by Klandermans et al. (2002) is biased in the assumption farmers participate negatively by joining protests. Research needs to be done on the beliefs and attitudes of farmers concerning participating in climate adaptive measures in Dutch rural areas.

1.4.2 Societal relevance

Dutch rural areas face challenges in implementing climate adaptive measures for flood events. There is a lack of effective cooperation between policymakers and farmers to cope with the frequent and severe impacts of flooding in these areas (Jamshed et al., 2020). Flood events are associated with various adverse environmental and societal consequences, including negative impacts on agriculture and food production (Van Tilburg et al., 2022). The escalating frequency of flood events in rural areas of the Netherlands poses a significant threat to various crops. Research conducted at Wageningen University has identified a list of crops that no longer thrive in regions where they once flourished due to these floods (WUR, 2023). Consequently, annual crop failures have become a pressing concern, research by Kim et al. (2023) conducted insights into the global loss of crop production due to floodings during the 1982-2016 period. According to this research, there was a total production loss of 5.5 billion United States dollars. This research focuses on the production of crops such as maize, rice, soy, and wheat. Besides these flood events in the United States, Dutch farmers are under pressure because of the more frequent flood events in the Netherlands. Beyond jeopardizing food security, these failures also have substantial financial implications for Dutch farmers (Verduurzaming Landbouw Heeft Grote Financiële Gevolgen Voor Boeren; Hulp Van De Overheid Is Nodig, 2024). For society it is of key importance that Dutch farmers are resilient to combat the more frequent flood events occurring caused by climate change. This resilience is of great importance for both food production and the safety of farmers and society (Brouwer et al., 2004).

To combat flood events in the Netherlands climate adaptive measures are introduced in environmental visions. Governmental documents (for example, the environment vision of Brabant Houtskoolschets Brabants Programma Landelijk Gebied 2023) show the ambitions and necessary measures that need to be taken. Not only in Brabant lays the task to combat climate change, but the state of the Netherlands also gets prepared for the climate agreement by reducing CO₂ emissions by 60% in 2030. This agreement implies reducing 5 million tons of CO₂ emissions. Research by the IPCC shows approximately 3.3 to 3.6 billion people all over the world live in contexts that are highly vulnerable to

climate change. Climate change has reduced food security and affected water security. Continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term in considered scenarios (IPPC, 2018). With further warming, climate change risks will become increasingly complex and more difficult to manage. Action needs to be taken now.

To implement climate adaptive measures several governmental documents arise like the environmental vision of Brabant as mentioned above (Noord-Brabant, 2023). Noord-Brabant is one of the provinces of the empirical focus together with the provinces Gelderland, Overijssel, Utrecht, and Zuid-Holland. This governmental document of Noord-Brabant aims to ensure that the Brabant agricultural and food chain makes a positive contribution to the goals for nature, water, and climate, while also providing a sustainable and viable perspective for agricultural entrepreneurs. The considerations made and embedded in policy will guide the Brabant Provincial Landscape Plan (BPLG). The BPLG constitutes a crucial building block for the spatial proposal in rural areas of Brabant, in which the BLG constitutes these measures for the rural areas of the Netherlands. These government documents involve lots of environmental implementations regulated by policymakers, but most of the time need to be performed by farmers. In this process, several barriers arise for farmers to implement these measures. To support implementation of these measures a participation process is needed (Baker et al., 2012). Growing public and political awareness of climate impacts and risks is of need to reduce the impacts of climate change on our environment.

1.5 Research outline

After the introduction, this research continues with the theoretical framework (chapter 2). Chapter 2 will present the key concepts underpinning this thesis and discuss theories about climate adaptive measures, participation processes, and barriers and enablers experienced by farmers for climate adaptive measures. In this section, the frameworks for analyzing experienced barriers and enablers by farmers will be generated from theories. The Methodology (chapter 3) will be the subsequent chapter. In this chapter the researcher will elucidate the choice concerning the research strategy and research methods. In chapter 4, the results of the qualitative analysis will be presented. The results will be discussed in the Discussion (chapter 5) in which interpretation of the results will be provided. It is followed by the Conclusions (chapter 6). The thesis will eventually end with the Recommendations (chapter 7) including the limitations and the reflection will be discussed.

Chapter 2. Theoretical framework

This chapter provides an overview of several concepts and theories that are relevant to this research. Firstly, in section 2.1, the concepts of climate adaptation and climate mitigation are explained. This section also refers to climate adaptation for flood events in the Netherlands. Section 2.2 briefly refers to the policy implementation process for climate adaptive measures. In section 2.3 both the concept of public participation and the theory of the ladder of participation are introduced and described. Section 2.4 shows the possible barriers and enablers in the participation and implementation process for farmers based on the literature. Lastly, in section 2.5 the theoretical framework that is derived by the literature review and used for the data collection will be introduced.

2.1 Climate mitigation and climate adaptation

To address climate change, two fundamental strategies are distinguished: climate mitigation and climate adaptation. These are two distinct approaches to addressing the environmental challenges that occur due to climate change. In this chapter, these two approaches will be defined.

Climate mitigation is defined by IPCC: 'A human intervention to reduce emissions or enhance the sinks of greenhouse gases' (IPCCa, 2014). In climate policy, mitigation measures are technologies, processes, or practices that contribute to reducing CO₂ emissions. For example, renewable energy technologies, waste minimization processes, and public transport commuting practices. These approaches are developed to support the resilience of our environment to combat negative consequences due to climate change.

Climate adaptation is defined by IPCC: 'In human systems, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects' (IPCCa, 2014). Climate adaptation in essence includes the measures that have been taken to adjust to the effects caused by climate change (European Environment Agency, 2023). Climate adaptation focuses on enhancing society's resilience to the changing climate and minimizing vulnerabilities. It encompasses an array of measures designed to adjust and respond to the adverse effects of climate change (European Union, 2020).

Climate resilient development refers to the process of implementing climate adaptive measures for sustainable development for climate change (IPCCb, 2014). This is done by seeking to adapt to adverse impacts that are occurring or prospectively reducing the risk of future impacts (Janetos, 2020). Actors involved in adapting to climate change are NGOs, private organizations, households and communities, and governments with a leading role (Pasquini et al., 2014).

2.1.1 Climate adaptation for flood events in rural areas in the Netherlands

Floods have severe impacts on rural areas. They alter the soil structure, fertility, and workability, affecting the farmers' livelihoods and crop production. This chapter discusses some of these impacts, drawing on a report of RIVM by Claessens et al. (2008) on the effects of high water levels on soil quality in rural areas.

Flood risk is defined as the potential danger that floods pose to individuals, property, and the natural landscape. It is determined by specific hazards and the vulnerability of the affected area (IPCCb, 2014).

Soil quality is determined by the performance of its ecosystem services, which are vital for rural areas (Claessens, et al., 2008). Ecosystem services are the benefits derived from ecological processes. They

include soil nutrient provision, stress resilience, and substance detoxification. Soil use determines the importance of ecosystem services for the user, for instance, a farmer would prioritize soil fertility (Rutgers et al., 2005). The impacts discussed in the report of RIVM by Claessens et al. (2008) on the effects of high-water levels on soil quality in rural areas (shown in table 2.1 below) will be discussed.

Based on the RIVM report by Claessens et al. (2008) an overview of the impacts of flood events for rural areas in the Netherlands is created. A distinction is made between flood events caused by flooding of clear water and flooding of seawater. According to this report of RIVM, different impacts due to flooding are listed. For the sake of this thesis, I focus on clear water flood events.

Table 2.1 Impacts on rural areas in the Netherlands of flood events. SOURCE: Claessens et al., 2008

Flooding of clear water	Soil structure disruption
	Nitrogen loss due to nitrate reduction
	Anaerobic conditions impair growth
	Flooding effects on diseases and pests

The impacts of flood events in rural areas are explained below.

Soil structure disruption expresses that heavy rainfall can cause soil crusting on sandy soils, leading to reduced aeration, drainage, and root growth (Faber et al., 2008). Soil compaction can occur during heavy rainfall, especially on fallow or newly sown soils. This can result in poor crop germination, shallow and weak rooting, waterlogging, and denitrification (Lipiec et al., 1995). These damages are hard to reverse. Poor water infiltration can also cause soil and nutrient losses through runoff.

Nitrogen loss due to nitrate reduction expresses that flooding of land affects the nutrient cycle by reducing cooperation between fungi and plants through the roots and altering nitrogen availability. Oxygen-rich sediments become nitrate-reducing when flooded, converting nitrate to N₂ and releasing it into the atmosphere (Olde Venterink et al., 2003). This limits plant growth by depriving them of nitrate.

Anaerobic conditions impair growth expressed in inundation reducing root growth more than leaf growth. Reduced root systems make plants more susceptible to drought when water recedes. Inundation also alters fruit quality and size by changing the chemical composition (Kozłowski. 1997). Inundation exceeding a few weeks is lethal for most higher plants (Vartapetian et al., 1997).

Flooding effects on diseases and pests are expressed in flooding that induces root rot and plant vulnerability. Some pathogenic fungi can survive low oxygen levels and infect roots (Kozłowski, 1997). Potato is prone to waterlogging, and submergence for several days causes tuber rot and losses (Blom et al., 2008). Flooding alters the soil microbial community (Bossio et al., 1998), affecting its disease and pest suppression capacity.

These impacts were found and collected for rural areas in the Netherlands located in the provinces Noord-Brabant, Gelderland, Overijssel, Utrecht, Gelderland, and Zuid-Holland. The created overview of these impacts gives insight into the needs of farmers concerning climate adaptive measures to overcome these impacts.

To combat these impacts policy implementations in rural areas are needed therefore, the implementation process for climate adaptive measures will be explained next.

2.2 Policy implementation process for climate adaptive measures

Research shows that the implementation of effective policies for climate adaptation is at risk and shows barriers for governments like lack of information, local expertise, financial resources, and political

support (Baker, et al., 2012). Strong awareness of climate impacts does not necessarily imply effective implementation of climate adaptive measures for flood events (Baker et al., 2012).

The research of Baker et al. (2012) points to three roles for governments to pursue to improve the quality of implementations.

1. Enable financial funding because continuous funding is essential for local governments to improve their knowledge base concerning the impacts of the local climate conditions and to facilitate effective climate impact planning, including long-term funding.
2. Governments need to negotiate and establish specific standards or requirements for climate adaptation plans; this should occur at higher levels of government, in conjunction with meaningful consultation with local governments.
3. Local governments must actively engage in public participation during the development of climate adaptation plans.

These different roles of government play a role in policy implementation and vice versa. Policy implementation refers to the process that unfolds between the initial expression of government intent, whether to act or refrain from it, and the impact in the world of action (O'Toole, 2000). Implementation research aims to systematically understand what emerges or is induced as actors deal with a policy problem. If a policy has been formulated it does not mean it will be implemented (Smith, 1973). Governments tend to formulate broad, incoherent policies which cause a lack of implementation (Smith, 1973). Governmental policies are designed to induce changes in society, therefore old patterns of interaction and institutions wish to be modified. This modification requires appropriate implementation of governmental policies (Smith, 1973). While policies are implemented, conflicts are experienced by those who are implementing the policy and by those affected by the policy. Smith (1973) regards public policies as conflict-generating forces in society in which it is necessary to consider the context of the implementation. Four components are important in the policy implementation process according to Smith (1973). These four components are (1) the idealized policy, (2) the implementing organization, (3) the target group, and (4) environmental factors.

This thesis focuses on the interaction of the target group (3) with the three other components mentioned above: the idealized policy, the implementing organization, and environmental factors. The interaction between the target group and the other components will be investigated by analyzing the participation process in rural areas in the Netherlands; the interviewed farmers correspond to the target group. Baker et al. (2012) stress the importance of public participation in the development of adaptation plans to gain support for the actual implementation of climate adaptive measures. The next chapter gives insight into the participation process with this target group.

2.3 Public participation

2.3.1 Participation

The target group mentioned before in this thesis corresponds to the farmers. Public participation is a debated concept, among other things due to the terminology of various terms such as 'public', 'stakeholder', 'citizen', or 'community'. The understanding regarding the meaning of public participation varies among groups of different interests. Public participation can occur in a variety of forms through education, information dissemination, advisory or review boards, public advocacy, and public hearings and submissions (Stec et al., 2000). These forms of public participation serve decision-makers in understanding and identifying the public interest (Petkova et al., 2002). Through public participation greater citizen involvement helps social considerations in governmental decisions and enhances the accountability, and thus acceptability, of environmental decisions (Lee et al., 2003). Because of the citizen involvement, public participation may lead to more coordinated plans. This may in turn result in

better implementation of decisions because the process of policy decisions has been completed with policymakers and citizens together (Wirth, 1996).

Citizens (and in this thesis farmers specifically) are involved in this public participation process as the target group and are viewed as democratic participants with voting rights, who could help the government to define goals by giving input provisions (Simonofski et al., 2017). 'Citizens often possess local knowledge and can propose innovative solutions that would lead to better resource allocation decisions, and thus better effectiveness' (Marzuki, 2015). Therefore, in the case of participation processes people are placed in the center of the process and are the ones who implement programs accordingly (Wilcox, 1994). This public participation allows the public to participate in the decision-making process of development planning (Marzuki, 2015).

Various models have been proposed to analyze the diverse forms of public participation. Arnstein's ladder of participation is a leading framework in the field for understanding the degrees of citizen engagement in decision-making by looking at participation opportunities (Razzaque et al., 2006).

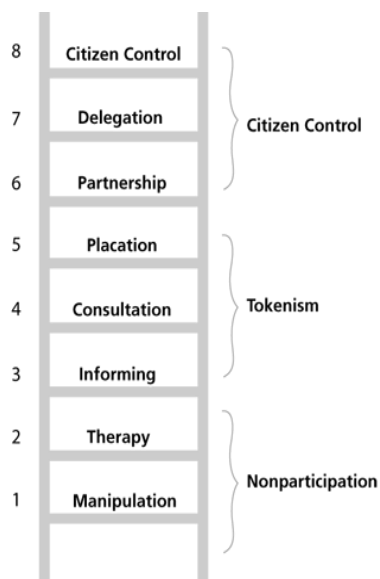
2.3.2 Ladder of participation

Arnstein (1969) defined public participation as a categorical term for citizen power. According to Arnstein, participation enables participants to determine what goals and policies have been set, how tax resources are allocated, programs operated, and information shared.

According to Arnstein (1969), public participation is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. In short, how they can induce significant social reform enables them to share in the benefits of society. To gain real power to participants which is needed to affect the outcome of the process (Arnstein, 1969). To achieve this redistribution of power in the participation process is essential.

Arnstein (1969) developed a typology of eight levels of participation (shown below in Figure 2.1) arranged in a ladder pattern with eight rungs, each corresponding to the extent of citizens' power. The rungs of the ladder of participation are divided into three categories: nonparticipation, tokenism, and citizen control (Arnstein, 1969). Nonparticipation aims to educate or inform people and does not enable them to participate. Tokenism allows participants to hear and have a voice but does not provide them with real power. Citizen control enables participants to negotiate, engage, or even have full managerial power.

Each of the eight rungs of the ladder of participation corresponds with a different degree of participation according to Arnstein (1969). Further explanation of the rungs is given next.



Arnstein's Ladder (1969)
Degrees of Citizen Participation

Figure 2.1: Ladder of Participation by Arnstein. Source: The Citizen's Handbook (1969)

Rung 1: Manipulation corresponds to the least practice of participation, an illusion of participation. Manipulation occurs when citizens are misled into believing they are given power in a process that operates with the denial of power.

Rung 2: Therapy, therapy as participation refers to the situation where powerlessness is framed as mental illness and the 'participation program' is created to cure them. Arnstein (1969) refers to this form of participation as invidious because it directs citizens' efforts toward self-improvement rather than addressing their challenges.

Rung 3: Informing describes an informing participation process, Arnstein (1969) observes that this process often falls short due to an overemphasis on unidirectional information flow (from officials to citizens) without involving moments of feedback or negotiation.

Rung 4: Consultation refers to the participation process as a consultation, citizens are invited to express their opinions and to constitute. However, this process fails to ensure that the collected ideas influence decision-making considering that the only goal to achieve for citizens is to participate and powerholders fulfill the procedural motions of involving citizens.

procedural motions of involving citizens.

Rung 5: Placation, participation as placation refers to a situation where citizens are granted a limited degree of influence within a process, but their participation is predominantly tokenistic. In other words, citizens are involved merely to create an appearance of their inclusion, without any substantial impact on decision-making.

Rung 6: Partnership, according to Arnstein (1969), power is redistributed through negotiation between citizens and powerholders. They agree to share planning and decision-making responsibilities through such structures as joint policy boards, planning committees, and mechanisms for resolving impasses. After the ground rules have been established through some form of give-and-take, they are not subject to unilateral change. Partnership as a participation process occurs when those in authority facilitate citizens' engagement in negotiating.

Rung 7: Delegation, at this level the ladder of participation is scaled to the point where citizens are assured of accountability of the program. This assurance of accountability appears because of delegated power that occurs when those in authority give away some degree of control.

Rung 8: Citizen Control corresponds to the highest practice of participation. Participation as citizen control manifests when citizens assume governance over a program or institution with the capacity to negotiate. Participation as citizen control according to Arnstein (1969) occurs when participants or residents can govern a program or an institution, be in full charge of policy and managerial aspects, and be able to negotiate the conditions under which 'outsiders' may change them.

2.3.3 Ladder of Government Participation

The ladder of participation by Arnstein (1969) focuses on different degrees of participation by linking them to the power of citizens arranged in a typology with eight rungs. The ladder of government participation by Mees et al. (2019) focuses on the practices of the participation by governments with a typology of five rungs.

The ladder of government participation by Mees et al. (2019) has similarities with the ladder of participation by Arnstein (1969), both refer to similar rungs but slightly different purposes. Participation according to Arnstein is a categorical term for citizen power, to induce significant social reform which enables the have-not citizens to benefit from the society. To gain real power to participants this power is needed to affect the outcome of the process. The theory of the ladder of government participation by Mees et al. (2019) is focused on the government's perspective by introducing the role of the municipalities. The focus on municipalities is taken to create an understanding of what 'facilitating' and 'enabling' roles municipalities might have for climate adaptive measures. These enabling roles support the citizen responsibilities that can reduce important barriers to the implementation of climate adaptive measures (Mees et al. 2019). The ladder of government participation by Mees et al. (2019) aims to deepen the understanding of the role of governments in citizens' initiatives.

The theory of the ladder of government is suitable for this research because of the distinction made of the specific roles of the government corresponding with the different degrees of participation, the degrees of participation are outlined in five rungs of participation levels. The ladder of government participation introduced by Mees et al. (2019) is shown in table 2.2. Descending the ladder represents more space for the initiative of the initiators; the initiators in this research involve farmers living in rural areas in the Netherlands.

Table 2.2: Ladder of government participation (Mees et al., 2019).

Rung	Roles for local governments	Who initiates, who coordinates, and who decides	Practices of local government roles
5	Regulating	The government regulates interventions by the community, so initiates, coordinates, and decides (hierarchical government).	Policy making, organizing traditional public participation such as hearings and citizen juries, checking, enforcing regulations, and sanctioning in case of non-compliance.
4	Network steering	Government (co-) initiates and creates a network of public and private stakeholders; it coordinates the decision-making process. Decisions are co-decided in the network.	Process coordination, fostering of dialogue and negotiation among stakeholders, mediation of interests, arbitrage of conflicts, trust building, and creation of a level playing field through rules of the game.
3	Stimulating	The government actively stimulates the initiation and continuation of community initiatives. Initiatives coordinate and decide independently from the government.	Provision of structural (financial) support during a longer period.
2	Facilitating/enabling	Initiatives are self-initiated, and the government has an interest in making them happen. Initiatives coordinate and decide independently from government.	Boundary spanning activities that facilitate free flows of ideas, people, and resources, while maintaining a boundary between the initiative and its institutional environment; Process facilitation, helping the initiative to find its way in the municipal organization, providing a (very) limited amount of resources and relevant information, schooling, and other forms of capacity development.

1	Letting go	Initiatives are self-initiated, self-coordinated, and self-governed without the help of government.	The government is not participating in any direct way, but indirectly by becoming ambassadors for such initiatives (“hands-off meta governance” cf. Sørensen, 2006).
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The fifth rung, regulating, on the ladder of government participation represents the highest role of regulation by the government. Regulation is initiated, coordinated, and decided by the government (Mees et al., 2019). In this rung, the government's role includes the whole decision-making process, and there is little to no participation in this rung of the ladder. This rung mostly focuses on regulating through the network structuration of citizen initiatives (Mees et al., 2019).

The fourth rung, network steering, includes process coordination and negotiation among stakeholders. The main role of the government in this rung is to have an overview of the initiatives, to bring the people of these initiatives together and in contact with each other, and finally to spread information and knowledge (Mees et al., 2019). Network steering is the most common rung used by governments for citizens' initiatives in climate change adaptation (Mees et al., 2019).

The third rung, stimulating, on the ladder of government participation represents the role of stimulating performed by the government. Stimulating by the government could be executed in different ways, for example through programs of structural subsidies or tax reductions. In this case, these measures of subsidies or tax reductions stimulate citizens to adapt to climate change. This role is more apparent in adaptation to pluvial flooding according to the literature of Mees et al. (2019).

The second rung, facilitating/enabling, on the ladder of government participation represents the role of facilitating/enabling executed by governments. In this role, governments deliver facilities to stimulate participation. For example, the government hires an expert in rainproof gardens to reinforce citizens' knowledge and to persuade citizens to participate in adaptive measures for rainproof gardens. The initiatives at this participation level are self-initiated by citizens and the government's role is to make the initiatives happen (Mees et al., 2019). In this rung, the boundary-spanning activities facilitate free flows between people, ideas, and resources.

The first rung, letting go, on the ladder of government participation represents the role of letting go of the regulation by the government. This rung of the ladder of government participation shows a clear role for the participants and no influence of the government. This involves no specific role for the government in participation, but indirectly governments could evolve into ambassadors for the initiatives of citizens (Mees et al., 2019).

To give insight into the participation process with farmers the ladder of government participation unpacks the role of governments in farmers' initiatives during the participation process. During this participation process barriers and enablers are experienced by farmers, and these barriers and enablers influence the participation process, but also the actual implementation of measures. To give insight into the participation process the experienced barriers and enablers are of great importance. Next, a distinction is made between experienced barriers and enablers for the participation process and experienced barriers and enablers for implementing climate adaptive measures, which is the ultimate advocated goal.

2.4 Barriers and enablers of participation

2.4.1 Barriers and enablers for participation

Several barriers and enablers influence the participation process with farmers. The barriers and enablers are retrieved from the research of Howat et al. (2001) where community participation is investigated

by the occurrence of barriers and enablers in a participation process. The research done by Kühne et al. (2013) focuses on farmers' beliefs as an influence on the participation process. Based on the research of Howat et al. (2001) and Kühne et al. (2013) barriers and enablers for participation are extracted and organized in five dimensions. The overview of barriers and enablers during participation processes is shown in Table 2.3. These dimensions and mentioned barriers and enablers will be explained in this chapter.

Table 2.3: Summary of barriers and enablers to participation retrieved from Howat et al. (2001) and Kühne et al. (2013).

Dimension	Definition	Barriers	Enablers
Financial support & market forces	Financial outputs and inputs	High value of land Time intensive Lack of financial support	Governmental subsidies Market forces Ancillary activity
Information dissemination	How the information is communicated	Restraint of open and honest communication Information is not objective Not aware of activities	Reduce the distance between the sector and policymakers Prevent from isolation Information from outside the sector
Institutional setting & regulations	Government regulations and institutions' interests	Lack of leadership Integral / one approach Lack of program evaluation	Bargaining power Responsibility / Ownership Transparent communication
Farming practice	Factors related to the farming operation and management	Low perceived return on investment One person on the farm Lack of time Dependency on the weather	Different people on the same farm Calm period
Beliefs, attitudes, and individual capabilities	People's awareness, knowledge, capabilities, what people think, feel, believe and can already confidently do	Negative attention Not willing to share information No network skills	Exchange of knowledge Image of the sector Network skills

Financial support and market forces play a role in the participation process. Barriers such as lack of financial support are experienced in the high value of agricultural land can hinder expansion and sustainable use of farmland. When land prices are high, it becomes challenging for new farmers or small-scale agricultural businesses to acquire land. The initial investment required to purchase or lease land can be prohibitive (Jellema et al., 2023). Besides the costs of land, the agricultural sector is time intensive and time is money, especially in small-scale agricultural businesses with fewer labor possibilities (Kühne et al., 2013). Enablers experienced by farmers are focused on subsidies for innovations and implementation of market forces (Howat et al., 2001). An ancillary activity forms income diversification by expanding their business with new activities. These ancillary activities can result in increased and more stable income (Food Hub, 2023).

Information dissemination defines how the information is communicated. Transparent communication is key for a good participation process. Barriers such as not open communication because of an unsafe environment, not objective information obtained, and therefore not being aware of activities are experienced in the participation process (Kühne et al., 2013). Good communication of information enables participation by reducing the distance between the sector and policymakers, which makes it easier to get in contact (Kühne et al., 2013). This also prevents isolation and brings information from outside the sector inside, so farmers are not one-sided informed (Kühne et al., 2013).

Institutional setting and regulations form a dimension in the participation process with a focus on the interests of governmental parties. Lack of leadership is seen as one of the main barriers to public

participation. Leadership is an essential component of public participation. It is of great importance to define leadership in projects, this encourages initiating projects and facilitation (Howat et al., 2001). Inappropriate program evaluation causes a lack of sustainable public participation, whereas program evaluation lessons can be drawn from the participation process. These lessons could develop public participation in a further stadium (Howat et al., 2001). The urge to steer one approach causes exclusions of new and innovative ideas for participation. Adherence to one approach or process causes barriers in public participation because of the focus on one process and it is doubtful that this process is the best (Howat et al., 2001). Institutional setting and regulations enable power to stakeholders and steer transparent communication (Kühne et al., 2013). By involving farmers in the regulations, a sense of responsibility and ownership will be created which intrinsically enhances farmers' participation (Mees et al., 2019).

Farming practice refers to factors related to farming operation and management. This involves all practical factors that create barriers or enablers for farmers to participate. Lack of time, labor, and the amount of investment in low perceived return forms practical barriers for farmers to participate (Kühne et al., 2013). On top of that farmers depend on the weather for their activities at the farm which is most of the time not included in bureaucratic participation processes (Kühne et al., 2013). On the other hand, the dependency on weather could work as an enabler for participation because in rainy seasons there is not much work on the land. And same for labor if more people work on the farm it is more likely for a farmer to be involved in participation processes (Kühne et al., 2013).

Beliefs, attitudes, and individual capabilities as dimensions are defined as people's awareness, knowledge, capabilities, what people think, feel, believe, and can already confidently do in their company for participation. Barriers that influence the knowledge, awareness, and what farmers think is negative attention, which results in less cooperation in participation (Kühne et al., 2013). Lack of network skills and the lack of willingness to share knowledge fails the participation process (Kühne et al., 2013). These barriers could if well-developed occur as enablers if network skills are well-developed, the exchange of knowledge is promoted and if the image of the sector is positive (Kühne et al., 2013). This dimension refers to a feature of a social organization based on networks and social trust that facilitate coordination and cooperation for mutual benefit (Putman, 1995).

These barriers and enablers experienced by farmers for participation give insight into understanding why participation can be difficult for farmers.

2.4.2 Barriers and enablers for implementing climate adaptive measures

Besides barriers and enablers for participation, the research conducted by David et al. (2022) provides an overview of barriers and enablers experienced in implementing of climate adaptive measures in rural areas. David et al. (2022) create an overview of barriers and enablers experienced by farmers for adapting to climate-adaptive implementations. This research developed a thematic analysis to group these barriers and enablers into five dimensions.

The barriers and enablers useful for this thesis are extracted from the theory by David et al. (2022) and added to a newly created table. These barriers and enablers of implementation are structured according to the same template as the barriers and enablers to participation retrieved by Howat et al. (2001) and Kühne et al. (2013) to create a corresponding database for the theory of this thesis. The summary of the barriers and enablers of the implementation of climate adaptive measures is shown in Table 2.4. These dimensions and corresponding barriers and enablers will be explained in this chapter.

Table 2.4: Summary of barriers and enablers of implementation of climate adaptive measures retrieved from David et al. (2022).

Theme	Definition	Barriers	Enablers
Financial support & market forces	Financial outputs and inputs	Lack of government funding Lack of money High up-front costs	Governmental subsidies Market forces Branding and image
Information dissemination	How the information is communicated	Failure to deliver communication that farmers need and value Low / no communication between stakeholders Confused messaging	Clear communication Bridging science and practice Transparent communication
Institutional setting & regulations	Government regulations and institutions' interests	Industry influence Bottom-up steering Integral / one approach	Regulation and policy Institutional structure Collaboration
Farming practice	Factors related to the farming operation and management	Business management Time Technical aspects	Business management Labor availability Technical aspects
Beliefs, attitudes, and individual capabilities	People's awareness, knowledge, capabilities, what people think, feel, believe and can already confidently do	Preference Trust Resistance	Knowledge Perceptions Motivation

Financial support & market forces refer to all input and output of financial means and include the availability and access to financial support; a barrier to implementation is a lack of money. It is also associated with the economy or the market demand. A lack of financial support is a barrier to the implementation of climate adaptive measures by farmers, whereas financial investments enable the implementation. The market influences practice change, like product price strongly influences the implementation by farmers. A higher product price for products from fields with climate adaptive measures implemented could enable farmers to implement climate adaptive measures (David et al., 2022). Another enabler as well as a barrier is branding and image; if the new practice provides an opportunity for improvement farmers are more likely to implement climate adaptive measures. On the contrary, if the implementation causes concerns about output quality it serves as a barrier (David et al., 2022).

Information dissemination refers to how the information is communicated. This theme illustrates that information through appropriate channels enables climate adaptive implementations. Also, it discovered a disconnection between science and farming practices showing insufficient research has been done on this subject. The lack of research results in too little knowledge on the topic, this lack of knowledge resolves a barrier to implementation by farmers. This knowledge failed to be shared because of low/no communication between stakeholders, confused messaging, and failure to deliver communication that farmers need and value (David et al., 2022). Enablers are clear communication and bridging the science and practice together (David et al., 2022). Another enabler is generating transparent communication; this helps understand the situation from different points of view, connects farmers and policymakers in the decision-making process, helps in sharing knowledge, and creates a transparent collaboration (David et al., 2022).

Institutional setting & regulations play a role in this case. Institutional settings focus on institutions' interests and regulations imply governmental policies. Regulation could be an enabler for farmers because of goals set for rural areas by regulation and policy (David et al., 2022). Institutional structure gives structure and goals which show to support the implementation of climate adaptive measures,

especially in combination with cooperation with governmental parties. However, barriers occur when the implementation of policy suffers from the absence of active collaboration. Bottom-up steering is experienced as a barrier because farmers experience to do not have influence (Howat et al., 2001). Also, the influence of industries (with other interests) causes barriers for farmers (David et al., 2022). Influence on regulations of other sectors (such as the industry sector) could hinder the practice change of farmers because the unequal treatment for the agricultural sector in comparison with other sectors feels unfair (Feliciano et al., 2014).

Farming practice include factors related to all the aspects of operating farming. Business management occurs to be a barrier when associated with greater financial and logistical risks, whereas optimal farming operation enables the implementation of climate adaptive measures. Barriers to technical aspects related to created challenges for farmers. Other barriers are labor shortage, time-intensive adaptations and not innovating (David et al., 2022). Remarkable for this dimension is that the same barrier could also operate as an enabler depending on the interpretation.

Beliefs, attitudes, and individual capabilities relate to the feelings and thinking of farmers. Knowledge is a key aspect. Greater knowledge of sustainable adaptation is seen as an enabler for farmers, and lack of knowledge is a barrier. Perception, motivation, interest, and trust play a role as both barriers and enablers depending on the attitude toward practice change. Peer interaction, meaning farmer-to-farmer connection enables the implementation of climate adaptive measures. Lack of collaborative involvement results in distrust and causes barriers for farmers to implement. Social norms enable the implementation of climate adaptive measures by farmers, but social pressure could hinder the implementation (David et al., 2022).

These barriers and enablers experienced by farmers for implementing climate adaptive measures will be used to understand why implementation of climate adaptive measures can be experienced with difficulties by farmers.

The theories introduced before will be collected in the theoretical framework that will be used for the data collection, whose findings are presented in Chapter 4.

2.5 Framework for barriers and enablers to farmer participation

The research introduced above allows to create an overview of possible experienced barriers and enablers by the farmers. These barriers and enablers are influenced by the role of the government; this indicates the role of the government has an influence on the participation process as well as the implementation process. The research on the role of government by Mees et al. (2019) with the experienced barriers and enablers of David et al. (2022); Howat et al. (2001) and Kühne et al. (2013) results in the following framework.

2.5.1 Theoretical framework

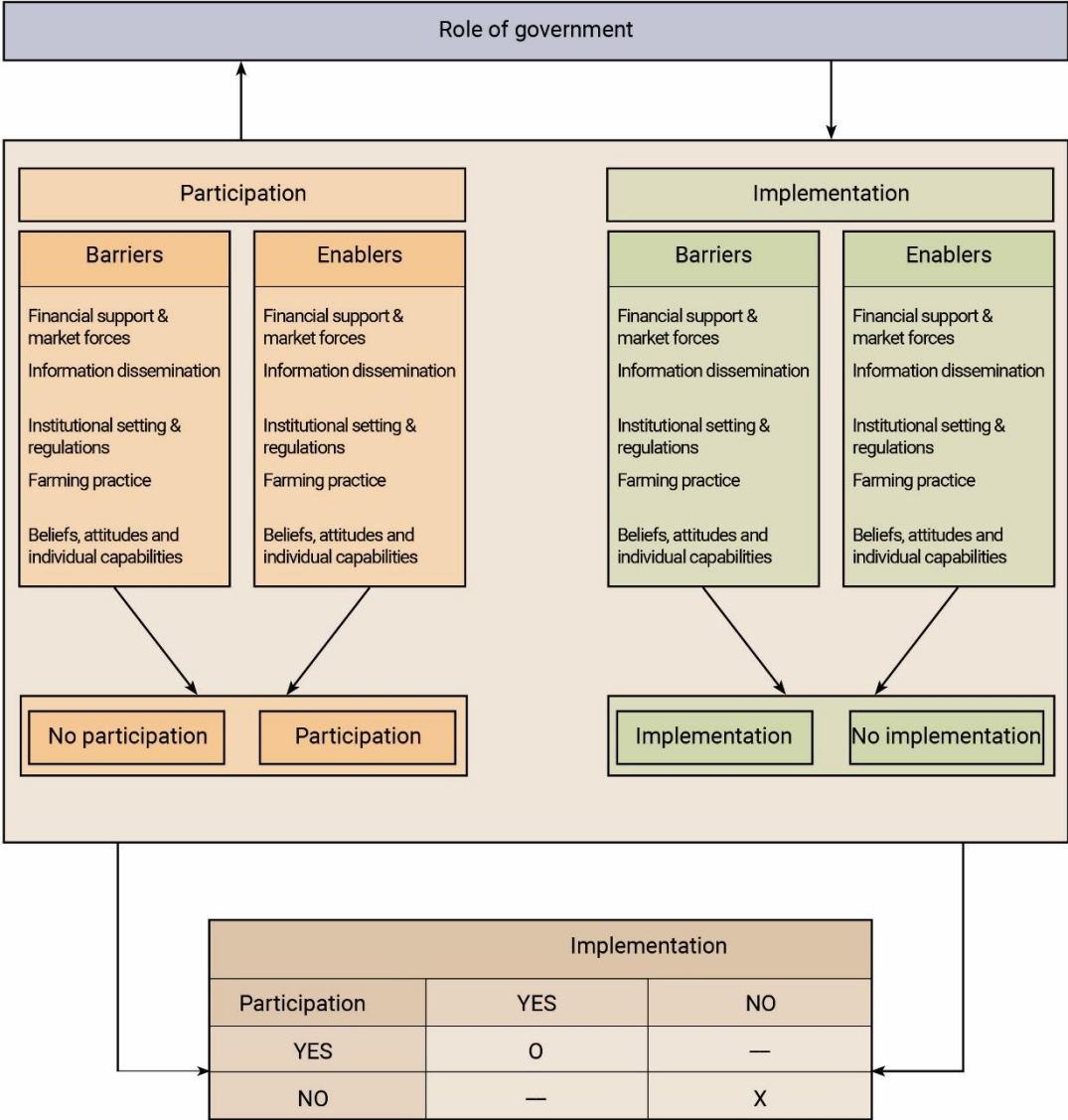


Figure 2.2: Theoretical framework (self-created, 2024).

No implementation of climate adaptive measures happens when barriers are experienced for participation and barriers are experienced for implementation, as indicated in the figure above with 'X'. The actual implementation of climate adaptive measures happens when enablers are experienced for participation and enablers are experienced for implementation, as indicated in the figure above with 'O'. When there are barriers experienced for the implementation and enablers experienced for the participation or reversed (enablers experienced for the implementation and barriers experienced for the participation) there is the possibility for an actual implementation; this ultimately depends on external factors like the role of the government. These possibilities are indicated in the figure above with '—'.

The exposed barriers and enablers in participation processes and the exposed barriers and enablers for implementation are decisive for the required role of the government. The role of the government needs to be assessed by the governed party to enhance the participation process with farmers that results in

the actual implementation of climate adaptive measures. The interaction of experienced barriers and enablers influences the role of the government, and the cooperation of these actors decides the participation process.

2.5.2 Operationalization

Explanatory variable	Sub-variable	Indicator	Assumption	Reference
Role of government	Letting go	Initiatives are self-initiated, self-coordinated, and self-governed without the help of government.	The role of the government influences the way of implementation and the way of participation. Simultaneously participating influences the role taken by the government.	Mees et al. (2019)
	Facilitating/enabling	Initiatives are self-initiated, and the government has an interest in making them happen. Initiatives coordinate and decide independently from the government.		Mees et al. (2019)
	Stimulating	The government actively stimulates the initiation and continuation of community initiatives. Initiatives coordinate and decide independently from the government.		Mees et al. (2019)
	Network steering	Government (co-) initiates and creates a network of public and private stakeholders; it coordinates the decision-making process. Decisions are co-decided in the network.		Mees et al. (2019)
	Regulating	The government regulates interventions by the community, so initiates, coordinates, and decides (hierarchical government).		Mees et al. (2019)
Barriers and enablers for participation	Financial support & market forces	Financial support and market forces play a role in the participation process.	Barriers and enablers for participation are contributing (or not) to the participation process of farmers for climate adaptive measures in rural areas in the Netherlands.	Howat et al., (2001) Kühne et al., (2013)
	Information dissemination	How the information is communicated.		Kühne et al., (2013)
	Institutional setting & regulations	A dimension in the participation process with a focus on the interests and agenda of governmental parties.		Howat et al., (2001) Kühne et al., (2013)
	Farming practice	Factors related to the farming operation and management.		Kühne et al., (2013)
	Beliefs, attitudes, and individual capabilities	People's awareness, knowledge, capabilities, what people think, feel, believe, and can already confidently do in their company for participation.		Kühne et al., (2013) Putman, (1995)
Barriers and enablers for implementation	Financial support & market forces	Refer to all input and output of financial means and include the availability and access to financial support. It is also associated	Barriers and enablers for implementation are contributing (or not) to the	David et al., (2022)

		with the economy or the market demand.	implementation of climate adaptive measures in rural areas in the Netherlands.	
	Information dissemination	Communication of information.		David et al., (2022)
	Institutional setting & regulations	Institutions' interests and regulations imply governmental policies.		David et al., (2022) Howat et al., (2001)
	Farming practice	Factors related to all the aspects while operating farming.		David et al., (2022)
	Beliefs, attitudes, and individual capabilities	Personal feelings and thinking of farmers.		David et al., (2022)
Participation	Participation	According to the experienced barriers and enablers, there is (no) participation.	The experience of fewer barriers and attractive enablers in combination with a preferred role of the government results in a successful participation process.	Howat et al., (2001) Kühne et al., (2013)
	No participation			
Implementation	Implementation	According to the experienced barriers and enablers, there is (no) implementation.	The experience of fewer barriers and attractive enablers in combination with a preferred role of the government results in a successful implementation process.	David et al., (2022)
	No Implementation			

Chapter 3. Methodology

This chapter outlines the selected methodology to guide the research process. To outline the method of this research, the research onion of Saunders et al., (2016) is used (see figure 3.1). The first section, section 3.1, describes the research philosophy and is followed by section 3.2, where the research strategy is mentioned followed up with the case study strategy. Subsequently, section 3.3 describes the methodological choices made in this research. This is followed by section 3.4, where the time frame of the research is described. In section 3.5, a description of the techniques and procedures are described, which include data collection and data analysis. Lastly, the validity and reliability of this research are presented in section 3.6.

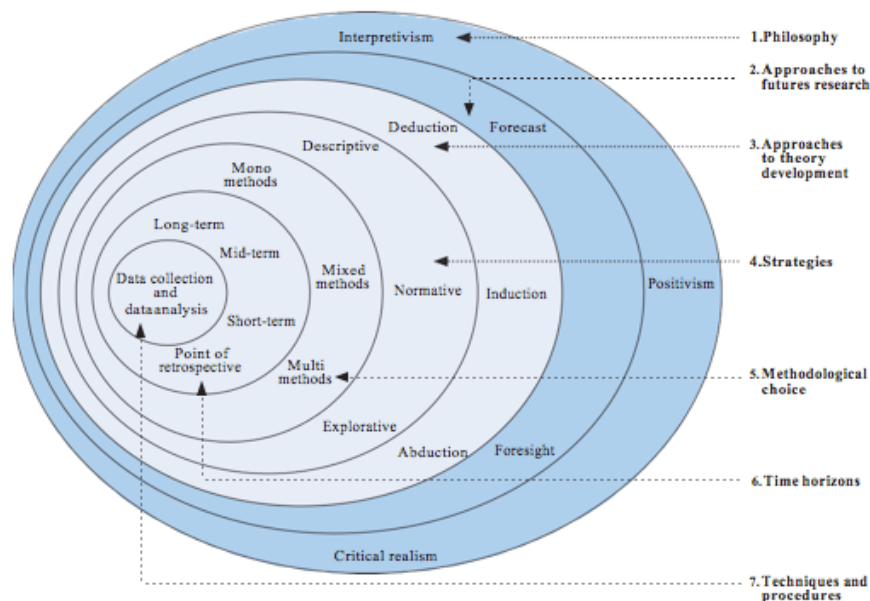


Figure 3.1: research onion (Saunders et al., 2016)

3.1 Research philosophy

The first layer of the research onion is research philosophy. Research philosophy refers to principles related to the worldview or assumptions about the development of knowledge (Saunders et al., 2016). In every stage of the research, assumptions are made. These assumptions are categorized in three terms. First, ontological assumptions are assumptions about the nature of reality and how this is understood by people. Second, epistemological assumptions are assumptions about human knowledge and valid knowledge needed for research. And third is axiological assumptions, which are about the influence of the research process on researchers' values. These assumptions give insight into how the researcher understands and interprets the research (Crotty, 1998).

Saunders et al. (2016) delineate five predominant philosophies in the field of business and management: positivism, critical realism, interpretivism, postmodernism, and pragmatism.

Positivism aligns with the philosophical standpoint of the natural scientist, emphasizing the use of observable social reality to generate law-like generalizations. In this approach the positivist strictly uses scientific empiricist method designs, aiming to produce unbiased data. The researcher in positivism maintains a detached, neutral, and independent stance, seeking objectivity to generalize outcomes as a singular truth.

Critical realism, as described by Saunders et al. (2016), focuses on explaining observable events in terms of the underlying structures of reality that shape them. This philosophy posits a two-step process for

understanding phenomena: first, the events experienced, and second, the mental processing afterward to discern the underlying reality. To examine research how they have changed over time.

Interpretivism asserts that humans, distinct from physical phenomena, create meanings. It argues that the study of human and social worlds must differ from the approach used in natural sciences due to the variability of meanings made by people from different cultural backgrounds and circumstances. Interpretive research aims to understand and interpret social worlds and contexts.

Postmodernism emphasizes language and power relations, challenging accepted ways of thinking and amplifying alternative marginalized views. Postmodernists believe that any sense of order is provisional and foundationless, shaped by language with its categories and classifications. Postmodern research seeks to radically challenge established modes of thinking and knowing.

The final research philosophy, pragmatism, asserts that concepts are only relevant if they support action. Pragmatist research, according to Saunders et al. (2016), begins with a problem and aims to contribute practical solutions that inform future practice. This approach evaluates concepts, theories, hypotheses, and research findings concerning their roles as instruments of action.

The five research philosophies have been described in the previous part. Due to the variability of meanings made by people from different cultural backgrounds, farmers and policymakers, and circumstances, this research aims at the philosophy of interpretivism where the research aims to understand and interpret social worlds and contexts (Saunders et al., 2016). There is a huge difference in cultural backgrounds between farmers and policymakers still, they need to participate in the implementation of climate adaptive measures in rural areas. Because of the different backgrounds and expertise misinterpretations occur in the communication between farmers and policy makers. This research needs to study human interaction because this depends on creating meaning for independent human beings which revolves in non-natural science and therefore asks for a philosophy of interpretivism an approach with room for variability of meanings by people from different cultural backgrounds.

3.2 Research strategy

The next layer of the research onion by Saunders et al. (2016) is the research strategy. Some research strategies are exclusively linked to a quantitative research design, and some are linked to a qualitative research design. For qualitative research design, different strategies could be used; archival research, case study, ethnography, action research, grounded theory, and narrative inquiry (Saunders et al., 2016). The research strategy that is the most suitable for this research is the case study. A case study explores a research phenomenon within their specific context which develops in-depth research (Yin, 2009). Case studies also help to understand a topic holistically and from multiple angles, this research is significant because of the different viewpoints of farmers and on the other hand, policymakers who have to deal with the same problems but with different interests. Lastly, because of the rare phenomenon and understudied concept of climate adaptive measures for flood events in rural areas, a case study is needed to collect specific data on this phenomenon (Saunders et al., 2016).

For approaches to theory development, the deductive approach or the inductive approach could be used when starting with theory building or theory testing through research questions. The deductive approach starts with a hypothesis based on a literature review and tries to test the hypothesis. The inductive approach, on the other hand, starts with observations that could be used to create a new theory (Saunders et al., 2016). Besides deductive (moving from theory to data) or inductive (data to theory), there is another approach the abductive approach that moves back and forth. The abductive approach therefore combines the deductive and inductive approach (Suddaby, 2006). This case study

presented a theoretical framework based on reviewed literature this research uses a deductive approach to theory development starting with the theory on public participation and applying it to cases in the chosen rural areas of the Netherlands. The research started with reviewed literature followed up with useful theories and used interviews with participants to collect data from different points of view.

According to Saunders et al. (2016) for qualitative research methods, it is common to include in-depth or semi-structured interviews. An in-depth interview is informal and is used to gather the general phenomenon in which one is interested, without the use of script-like questions. Semi-structured interviews use follow-up questions to collect information about the question that had been asked. Semi-structured interviews keep structure and guidance by using advance-prepared interview guidance. For this research, the semi-structured interview method is used. This interview is enriched with a clear overview of experienced barriers and enablers according to the literature for a clear and consistent collection of data.

3.2.1 Case Study Strategy

This thesis uses a case study strategy. The Netherlands, with its unique delta landscape, faces challenges related to climate change. In this case study, we explored if farmers in the Netherlands based in two regions are participating to adapt their practices. Given the research focus on flood-prone regions in rural areas, the first set of cases is based around the river area with prominent rivers such as 'De Rijn' and 'De Maas'. The other case is based on the higher regions of the Netherlands with less flood-prone areas. This distinction is made to investigate flood events in rural areas of the Netherlands. Soil type emerged as a critical factor in delineating the areas involving participating farmers. The case studies were selected based on soil characteristics, a distinction was made between (high) sandy soils and (low) clay soils. These chosen case studies encompass a geographically dispersed research domain. Sandy soils are predominantly located in the provinces of Noord-Brabant, Gelderland, and Overijssel. Clay soils are predominantly located in the provinces of Noord-Brabant, Utrecht, Gelderland, and Zuid-Holland. In Figure 3.2 the location of the interviewed farmers is shown. A circle corresponds with farmers based on clay soils and a star corresponds with farmers based on sandy soils.

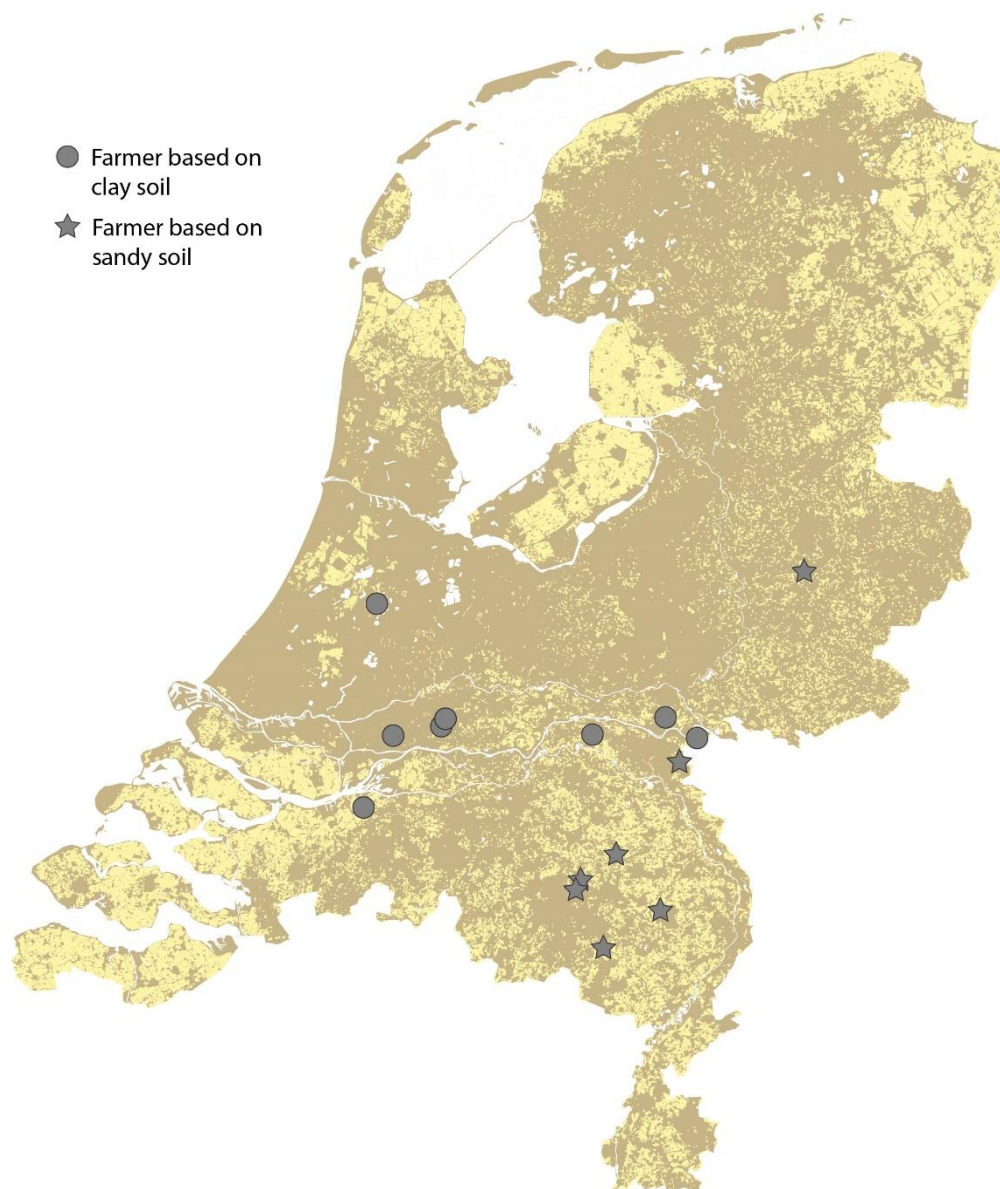


Figure 3.2: Overview case study interviewed farmers (self-created, 2024).

3.3 Methodological choices

The next layer of the research onion by Saunders et al. (2016), is about the methodological choices that are made. The methodological choice is whether this research will follow a quantitative, qualitative, or mixed-method research design. Quantitative research examines relationships between variables measured numerically and analyzed with statistical techniques (Saunders et al., 2016). Quantitative research design is often used as an experimental design, data is collected and analyzed to test theory. The data is collected in several techniques such as questionnaires or observations. Qualitative research design, on the other hand, studies participants' meanings and relationships between them (Saunders et al., 2016). In qualitative research design meanings and insights are derived from words instead of numbers. Since these words have multiple meanings, it is necessary to explore them and clarify them with participants. This can be done through in-depth interviews, case studies, focus groups, etc.

The purpose of this research is to understand barriers and enablers for the participation of farmers in implementing climate adaptive measures for flood events. This research is done by looking at experienced barriers and enablers that influence the participation process of farmers. Due to the lack of empirical evidence, interviews with farmers are necessary in this research. Besides retrieved empirical evidence from the interviews, this empirical evidence is enriched with reviewed theories of public participation to understand participation processes. These findings together with the interviews created meaningful findings on participation processes within rural areas. The empirical evidence on public participation and interviews within the field develops a holistic overview and fills the gap between the communication of farmers and policymakers. This research therefore will be explanatory research, to address the explanatory purpose a qualitative research method is used. The use of qualitative research enables the opportunity to study the meanings and relationships of participants useful for the research.

3.4 Time

Time is the next step in the research onion by Saunders et al. (2016). Research can be conducted in two different time frames as mentioned by Saunders et al. (2016) cross-sectional and longitudinal. Where cross-sectional expresses time in an actual date and longitudinal expresses time as a sequence of events over a period. In this research the research is done by cross-sectional time, the due date determines the duration of this research which was ten months.

3.5 Techniques and procedures

3.5.1 Data collection

3.5.1.1 Desk research

For this research, I relied on a combination of desk research and interviews. I analyzed documents and scientific articles about climate adaptive measures for flood events, theories for participation processes, and the implementation of policies. Different documents were analyzed during this research.

For impacts caused by flood events in rural areas of the Netherlands the research by Claessens et al. (2008) '*Verkenning effecten hoogwaterstanden op de bodemkwaliteit in het landelijke en stedelijke gebied*' was used. This research was conducted on behalf of the Ministry of Housing and Spatial Planning Environmental Management, in the context of the RIVM project M/607050003/2008. This research gives insight into the impacts on the soil of rural areas in the Netherlands caused by flood events. Retrieved from the database of WUR (Wageningen University&Research). Keywords used: *landelijk gebied, overstromingen*. Via this institution, access was gained to the library of RIVM: '*bibliotheek RIVM*'.

For this research data about impacts of climate change is conducted from the Synthesis Report: *the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. This research was retrieved from the database of Google Scholar. Keywords used: *climate change*, which led to the Intergovernmental Panel on Climate Change (IPCC). This Synthesis Report summarizes the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation.

This desk research forms the base for composing the interview questionnaire. During this desk research, various informal conversations with employees of Royal HaskoningDHV contributed to identifying directions for my research.

3.5.1.2 Interviews

Case studies may include several qualitative methods to collect and analyze data (Yin, 2009). The method of primary data collection used for this research are interviews. Interviews can vary in degrees of formalization, using standardized questions for each participant or they may be informal and

unstructured conversations (Saunders et al., 2016). The search for participants for my research started with contacting policy institutions like municipalities and water authorities. I spoke to policymakers from the provinces of Noord-Brabant, Gelderland, Overijssel, Utrecht, Gelderland, and Zuid-Holland. As a result of these conversations, it became evident significant challenges were present in diverse flood-prone regions within rural areas of the Netherlands. Soil type emerged as a critical factor in delineating the areas involving participating farmers. Two specific case study typologies emerged, selected based on soil characteristics located in the 6 provinces mentioned earlier. The focus of these cases is Dutch farms based on either sandy soils or clay soils located in the provinces Noord-Brabant, Gelderland, Utrecht, Overijssel, and Zuid-Holland.

Participants in the study consist of Dutch farmers who face flood risk. Besides this, the farmers have varying business compositions and practices and are situated on either sandy or clay soils in rural areas. My engagement with these farmers stems from connections established during interactions with government agencies, projects at my internship company, Royal HaskoningDHV, and external contacts from voluntary pilots. An overview of the interviewed farmers, the soil type, and the type of farmer is shown in table 3.1 below.

Table 3.1: Overview of interviewed farmers based on soil type and sector (self-created, 2024).

Indicated number for the farmer	Soil type	Type of farmer
1	Sandy soil	Agriculture
2	Sandy soil	Dairy farmer
3	Sandy soil	Dairy farmer
4	Sandy soil	Dairy farmer
5	Sandy soil	Biological dairy farmer
6	Sandy soil	Agriculture
7	Sandy soil	Dairy and pig farmer
8	Clay soil	Biological dairy farmer
9	Clay soil	Biological dairy farmer
10	Clay soil	Agriculture
11	Clay soil	Dairy farmer
12	Clay soil	Biological agriculture
13	Clay soil	Biological dairy farmer
14	Clay soil	Biological dairy farmer
15	Clay soil	Biological horse farmer

The conversation during the interviews was guided by an interview guide and has been recorded to collect the data. The interview guide is included in appendix 2. The interviews were conducted in Dutch as this is the native language of the respondents. Therefore, the transcriptions are in Dutch. Due to privacy legislation, the audio recordings are not made available.

3.5.2 Data analysis

The last step of the research onion is to select techniques and procedures to analyze the data. Because of deductive research, the theoretical framework and operationalization of the variables, are used as a basis for the analysis of data.

Data Management and Organization: Except for the literature review the data is collected through audio recordings recorded on the researcher's mobile. These audio recordings are stored offline on a USB drive and in a personal drive document. After transcription, the audio recordings are promptly deleted.

Literature, publications, and documents used during the literature review are stored similarly to the audio recordings.

Reading and Noting Emerging Ideas: Initially, textual data is explored by creating memos, notes, and initial codes. This process helps to gain a clear overview of the dataset, avoiding confusion caused by overly detailed codes. The preliminary data analysis step is facilitated using Atlas.ti software.

Describing and Classifying Codes into Themes: Given the deductive research approach, data coding follows a deductive method, deriving codes from the variables and indicators of the theoretical framework. However, since this research is qualitative and open to new insights, an inductive coding approach is also necessary. The first coding cycle employs structural coding. Structural coding aligns with the theoretical framework and operationalization table but does not allow for additional coding based on new insights. Therefore, a second cycle of coding involves initial coding (or 'open coding') to capture novel concepts not covered by the theoretical framework. The final codebook is included in Appendix 3 and can be found in the attached Atlas.ti file.

Developing and Assessing Interpretations: In this data analysis phase a critical reflection on descriptions, classifications, and interpretations is done. The assessment of data interpretation considers alignment with the theoretical framework and operationalization.

Representing and Visualizing Data: The final step aims to represent and visualize data. Specifically, it analyzes the experienced barriers and enabler to participation and implementation of climate adaptive measures. This involves constructing a coherent narrative and a theoretical framework based on the preceding data analysis steps.

3.6 Validity and reliability

A difference is being made for internal and external validity. For internal validity the cogency of the research itself is meant, is the intended effect measured? (Van Thiel, 2014). Case studies in general tend to be characterized as having high internal validity since detailed information is collected. To enhance the internal validity, I recorded the interviews to maximize data collection. Also, I tried to select the participants as diverse as possible to benefit from a research population from various places. The number of interviews includes 15 participants.

External validity consists of the extent to which research can be generalized, are the research results unique or do they also apply to other research? (Van Thiel, 2014). This research will be difficult to generalize because of the specific case of rural areas on sandy and clay soils in the Netherlands concerning flood events caused by climate change and the involvement of farmers. This case study focuses particularly on climate adaptive measures for flood events in the Netherlands, which makes it hard to extrapolate to the policy-making process of other countries due to different policies although similarities are found. Due to this, case studies are in general limited in external validity (Van Thiel, 2014). Findings can be regarded as representative of other situations, but especially in environmental studies processes will be case-specific due to the context of the problem and the specific location.

Reliability is the accuracy and consistency with which the variables are measured (Van Thiel, 2014). Accuracy is meant as "the degree of approximation to a certain expected value. It refers the quality of the result and is not equivalent to the precision." (Hofer et al., 2005, p. 550). Which implies the degree to which the result conforms to the correct value. "The consistency assumption is often stated such that an individual's potential outcome under her observed exposure history is precisely her observed outcome." (Cole & Frangakis, 2009, p. 3). Due to the flexibility of semi-structured interviews biases could arise from both researcher and participants. To assure accuracy during the research transparency and correct documentation are important to achieve. The results of this research could be imitated for other

studies and to conduct further research. Therefore, clear interview guidance is being used as mentioned before. This guidance gives the researcher guidelines on how to analyze the data in a deductive manner using a coding scheme to enable consistency in analyzing the interviews. However, qualitative research approaches are subject to the generation of research results depending on the abilities and experiences of the researcher. Therefore, some level of subjectivity needs to be embedded in the research (Van Thiel, 2014). On top of that, the desk research enhanced the validity and reliability of this research through triangulation. Triangulation implies more than one method is employed in a study, for a double check on the data collection and research results (Van Thiel, 2014).

Chapter 4. Results

This chapter presents the research findings, which are presented according to the structure based on the theoretical framework. By outlining the experienced barriers and enablers of participation in rural areas followed up with the experienced barriers and enablers for implementation of climate adaptive measures in Dutch rural areas. The experienced barriers and enablers correspond with the experienced barriers and enablers for financial support & market forces, information dissemination, institutional setting & regulations, farming practice and beliefs, attitudes, and individual capabilities from the theoretical framework.

4.1 Participation in flood adaptive policies in rural areas

4.1.1 Barriers to the participation of flood adaptive measures

Financial support & market forces

Farmers indicate that they utilize various sources of financial resources, including subsidies, collaborations with nature organizations, partnerships with private companies, and their revenue models. In broad terms, these financial inflows motivate farmers because they make their businesses profitable. These financial inflows are more applicable for the implementation, there is little to no financial support for farmers in the participation process. This point was made by one of the respondents, who argues: *'Then I just went there for nothing, so to speak. But then I said to another farmer everyone who is here gets paid. It is just his or her job. And we are coming to add something there as well.'* (Personal communication. Farmer 14. 5-4-2024). This quote is about a participation session organized by the municipality of Nijmegen for all farmers in the area. It shows there is no financial support for farmers attending participation sessions for flood adaptive implementations.

Additionally, farmers express caution when forming connections with policymakers, especially concerning subsidies. They fear being tied to commitments if they participate in certain initiatives. Given the uncertainty of policy changes in the Netherlands, this situation may not always be advantageous, as farmers could be locked into costs associated with implementing specific adjustments. *'We're always afraid that if we participate, we'll be stuck with it.'* (Personal communication, Farmer 5, 8-4-2024). This quote is about the climate adaptive implementation of the emission-reducing stable floor, which is included in the GLB, and therefore mentioned in the data in multiple policy documents of Noord-Brabant, Gelderland, and Zuid-Holland. This floor was supposed to reduce ammonia emissions—a significant investment for farmers, but they believed it was worthwhile. Some farmers have indicated that they implemented these stable floors, only to find out that they are now being removed from the policy documents and, consequently, no longer eligible for funding. This leaves farmers with a substantial investment that has essentially been in vain.

Information dissemination

From the interviews, it becomes evident that communication is sometimes present and sometimes absent, depending on the specific issues faced by farmers. Notably, there is significant variation across different government agencies. No government agency consistently falls short or excels in this regard; rather, it is a mix of random cases. Individual characteristics play a strong role, involving both farmers and policymakers. *'I think the intention of the staff is good. However, it is about experiencing how communication is received. Because communication also involves listening. It's about understanding how it lands.'* (Personal communication, Farmer 5, 8-4-2024). This quote came from a farmer who participated with policymakers of the municipality of Heeze-Leende to fill the ditch to enhance water storage capacity in periods of drought.

Regarding communication, farmers express that integrating participation sometimes feels like an obligatory task, done solely because participation is expected. *'But often, when big plans are made, there's an obligation to communicate, and that's how it feels.'* (Personal communication, Farmer 2, 21-3-2024). This quote refers to a gathering of local farmers from De Peel, located in Noord-Brabant, for a participation session with policymakers from the province. According to them, effective communication involves besides speaking active listening, which is occasionally lacking among policymakers. To create a sphere for active listening a dialogue is needed, which is not always present. Another farmer from Noord-Brabant mentioned that the communication style is *'Contact is not personal, often through email or letters.'* (Personal communication, Farmer 4, 26-3-2024). In this case, there is no dialogue, especially no room for listening between different parties there is only room for announcements.

Institutional settings & regulations

The interviews discuss the challenges faced by farmers due to inconsistent policies in the Dutch agricultural sector. It highlights the lack of effective supervision and frequent policy changes, resulting in unpredictability. With unpredictability is meant because of the lack of consistent implementation of policies there is no clear direction and frequent changes of policies appear. Additionally, promises related to subsidies are often broken, causing frustration for farmers. This inconsistent policy environment makes it difficult for them to rely on stable support. An example is the promises that are made regarding subsidies. Eventually, too many farmers apply for the subsidy unexpectedly, resulting in less money than anticipated. Promises are made and cannot be fulfilled, leading to retractions. Like retraction of the funding of the stable floors implemented in GLB's policy. *'And there you stand as a farmer with good intentions, and then it either falters on legal grounds or trust.'* (Personal communication, Farmer 5, 8-4-2024). Therefore, there is a need for good leadership which needs to be taken by policymakers according to farmers. The lack of leadership results in inappropriate and irregular policies. Leadership is defined by farmers as establishing good cooperation in which policymakers have a leading role because they are responsible for this sector. To develop this cooperation, farmers imply that policymakers should engage directly with farmers' practices. *'I also believe it's beneficial for policymakers to occasionally walk alongside the sector they're responsible for.'* (Personal communication, Farmer 7, 10-4-2024).

Farming practice

Barriers to farming practices are evident in farms that struggle with insufficient manpower, resulting in non-participation. The labor shortage is also associated with time constraints, as participation involves a time-intensive process that not every farmer can afford. Additionally, dependence on weather conditions, especially for arable farmers in the lead-up to the summer season, poses a significant barrier. During this busy period, a notable absence of farmers in participation procedures is observed. While these barriers are acknowledged by every interviewed farmer and certainly play a role, it is clear from the interviews that personal motivation to participate and engage in innovations often outweighs these obstacles. *'Yes, the harvest period is too busy, but in the summer I also make time for it when it is important.'* (Personal communication, Farmer 6, 3-4-2024).

Beliefs, attitudes, and individual capabilities

From their conviction and attitude towards the agricultural sector, farmers do not perceive any barriers. Occasionally, negative attention from outside the sector is seen as a barrier, although this is rare. Two retired farmers were interviewed, and both mentioned that contemporary farming no longer aligns with their beliefs, leading them to stop. They perceive significant changes in the practical execution of farming. While it used to be more focused on hands-on farming practices, there is now greater emphasis on paperwork due to stringent policies and compliance requirements. *'Previously, we were simply*

working hands-on in practice. Nowadays, there's also a lot of paperwork to fill out. (Personal communication, Farmer 4, 26-3-2024). The amount of paperwork is confirmed by a farmer from Noord-Brabant who mentioned that his brother works two workdays a week on the administration for approval of their farm by the GLB. Consequently, the joy of farming has diminished for these farmers. According to them, the craftsmanship of the farmer is lacking. They observe that the agricultural sector has undergone substantial transformation. The historical focus on growth has shifted, and the key priorities now demand a transition in the business model. The historical focus was learned in school argues a respondent: *'Only, back then you were still in a goal of only growth.'* (Personal communication, Farmer 7, 10-4-2024). What particularly bothers them is the large-scale farmers, who have historically reaped maximum benefits, continue to thrive while smaller farmers struggle.

4.1.2 Enablers to the participation of flood adaptive measures

Financial support & market forces

'I'm not a fan of subsidies. Of course, we also make use of that, because yes it is money that is available. Why wouldn't you do it as an entrepreneur? You always do that, but of course I would prefer it to be paid for from the market.' (Personal communication, Farmer 10, 19-2-2024). From the interviews with farmers, it is evident that financial support is an additional benefit, and farmers take advantage of it. Discussions about financial matters reveal a strong preference among farmers for a well-functioning revenue model. When farmers have a robust revenue model, government support becomes less necessary. However, significant investments are required, particularly for large climate-related adaptations, which cannot realistically be achieved without financial assistance. While the intrinsic motivation for farmers is not solely financial gain, it certainly helps. It is essential to maintain profitability for the business. Additionally, many farmers engage in secondary activities on the farm, often as hobbies, with negligible income compared to the primary business.

Information dissemination

The interaction between citizens and farmers is a factor that farmers highlight in the interviews. From the farmers' perspective, there is a search for citizen interaction. Some examples mentioned in the interviews include farm excursions, open barn doors for citizens to peek inside, and open days to involve citizens on the farm actively. *'That's why I also participate in excursions; it's important to keep talking to each other and to receive feedback.'* (Personal communication, Farmer 14, 5-4-2024). Besides communication between farmers and citizens, communication between farmers and policymakers and farmers among themselves is important for successful participation.

Institutional settings & regulations

As enablers, farmers are motivated to have close communication with policymakers to serve the purpose of facilitating contact. This close communication is still lacking according to this respondent: *'Some things are very confusing to me with those nitrogen floors, I don't understand it myself anymore. That's just the communication. But if something is clear about, nitrogens being chargeable, this has to happen in the sector, if that is said, then you immediately start doing something about it. Then you know what to do.'* (Personal communication, Farmer 14, 5-4-2024). This shows the lack of transparent communication of governmental bodies creates uncertainties about the requirements of a new stable floor for legal approval by the GLB. According to farmers, transparent communication will help to develop this close communication. According to farmers communication is not yet transparent because communication is happening too late, at the end of the stage just before the implementation part instead of the decisive part. Furthermore, the interviews reveal various outcomes regarding

participation with government authorities. The outcomes depend on context and local municipal governance, therefore there are no significant results to report.

Farming practice

From the interviews, no significant enablers emerge regarding farming practices. A favorable season, during a quiet period for farmers, as well as sufficient manpower, contributes to farmers' participation. However, these motivations are not decisive.

Beliefs, attitudes, and individual capabilities

What stands out in the interviews is that all farmers are passionate about their profession and their environment, which drives their commitment to farming. A key finding is the strong farmers' motivation. This point was made by a respondent who did implement flood adaptive measures but did not believe in climate change: *'Yes, for example, we have level-controlled drainage. So yes, there are already examples where you try to make the best possible use of the available possibilities.'* (Personal communication, Farmer 1, 22-2-2024). This farmer implemented this flood adaptive measure for the benefit of his yield. The focus nowadays is more on network skills and knowledge exchange. Additionally, it is of great importance for farmers to participate with policymakers to keep involved and to have a voice in decision-making and projects. Even though the involvement of policymakers and communication is lacking, farmers are still willing to participate for the benefit of their businesses.

4.2 Implementation of climate adaptive measures in rural areas

4.2.1 Barriers to the implementation of flood adaptive measures

Financial support & market forces

Farmers indicate the utilization of various sources of financial resources as mentioned before. These financial inflows make their businesses profitable which applies to the support of the implementation of climate adaptive measures. However, nuances also emerge. For instance, farmers acknowledge that subsidies can be beneficial when used strategically. Still, these subsidies can also have unintended consequences, leading to undesirable behavior not favoring climate adaptive measures. For example, farmers are forced to focus on the legal approval of these measures instead of focusing on the consequences for the climate. A respondent confirms this by explaining the focus on legal approval instead of the flood adaptive measures for the benefit of the climate. *'But the thing is in the Netherlands you can if you want to take certain steps, you cannot ignore those agencies. You need it. And, unfortunately, that is also where things sometimes go wrong. There are a lot of farmers who want to do a lot on their own. Seeing a lot of opportunities only those that are very inhibited by the bureaucracy, so to speak, in the Netherlands.'* (Personal communication, Farmer 7, 19-2-2024).

Two aspects of financial support need to be enlightened: market forces and governmental support. Market forces are determined by, for example, milk and piglet prices, but also influences of the industry of machines and pesticides play a role in these forces. Farmers mentioned experiencing more guarantee in market forces than governmental support. *'Yes, so I try to maintain that consistency myself.'* (Personal communication, Farmer 5, 8-4-2024). This consistency is important for business management, with the changing policies the market forces give a more stable business model according to farmers. To maintain the consistency of their business management this farmer from Zuid-Holland developed a business model to spread risk by introducing an autonomous branch by implementing a solar landscape on the sides of his land with less favorable characteristics for agriculture. *'I think the subsidy is more of an obstacle than a motivation. I think the subsidy is very bad because I often think it has to go back to the business model. There must be a business model in there. And of course, sometimes a helping hand such as a subsidy can help you.'* (Personal communication, Farmer 12, 26-3-2024). This quote shows the

missing business model with implementations based on governmental support with this statement the farmer implies enhancing market forces as a future-proof business model instead of temporary solutions referring to governmental support.

On the other hand, market forces come together with industry as an external stakeholder which has influence on the agricultural sector and on policies that are made. The industry influences the farmers in multiple ways; farmers need the industry for their resources, the industry acts as a competitor for land alongside farmers, and it plays a pivotal role in policy formulation and implementation.

Firstly, the agricultural sector relies on specific industries for machinery from manufacturers or feed for livestock. This dynamic creates a unique relationship where both parties seek business activity within regulatory frameworks, potentially leading to friction. The quote of a farmer that corresponds with this statement is *'We milk cows, Lely milks us.'* (Personal communication, Farmer 2, 21-3-2024). Lely is a milk machinery producer, the farmer implies that when you get a contract or resources from a certain producer you are stuck with them to produce your products, which makes you dependent.

Additionally, farmers perceive the industry as a competitor because they vie for the same parcels of land. However, different rules or restrictions often apply to both sectors due to pursued policies, which can be perceived as unfair by farmers. This occurs in obligations for land between farmers and land owners or Staatsbosbeheer.

Lastly, the industry has a stake in policy introductions and enforcement. Since the industry frequently operates in a different sector than agriculture, distinct regulations often apply to both sectors, making equitable distribution challenging. Additionally, this quote implies the dependency of farmers on the industry where industries have other obligations than the agricultural sector. *'You are directed by sales in certain directions.'* (Personal communication, Farmer 14, 5-4-2024).

Information dissemination

Poor information dissemination results in a lack of communication between farmers and policymakers. *'Extensive farmers, both conventional and organic, are now paying the price for the mismanagement of the past 40 years.'* (Personal communication, Farmer 13, 9-4-2024). Farmers and policymakers do not always cooperate, leading to mismanagements. *'We should act more as a single government entity, with all levels of government coming together at one table.'* (Personal communication, Farmer 2, 21-3-2024). This quote refers to the need for a central body where farmers can engage with policymakers to create consistent policies. At present often there is no cooperation or participation with farmers. *'However, as a steering committee, we risk becoming disconnected from practical realities.'* (Personal communication, Farmer 15, 10-4-2024). This highlights the concern that without farmers' input in the discussions for implementing waterretaining vegetation in Gelderland, policymakers may lack sufficient practical insights. This is an example of a collaboration between Louis Dolmans and policymakers of Gelderland, with an initiative called *'Agroforestry regio Nijmegen'*.

Furthermore, farmers often feel isolated from society which influences the engagement of the agricultural sector and other sectors. *'The distance between agriculture and the general public is much greater than 50 years ago due to the reduced number of farmers.'* (Personal communication, Farmer 13, 9-4-2024). The agricultural sector is not as common as it used to be, which could result in isolation of the agricultural sector.

Institutional settings & regulations

At present, farmers perceive that policies are being led and decisions are made in a manner that is directive in terms of means. *'From regulations. They focus on specific means.'* (Personal communication,

Farmer 2, 21-3-2024). Policies driven by means lack future vision, which hinders farmers from working toward specific objectives and goals concerning the implementation of flood adaptive measures. Unfortunately, a sense of direction is currently lacking according to this farmer in De Peel, Noord-Brabant. Farmers often feel they are being led from one thing to another without a clear focus. This approach is indicative of means-driven policies. *'Most rules work the opposite way from what they intend.'* (Personal communication, Farmer 5, 8-4-2024). This quote refers to the policy of the GLB. This policy concerns conservative grassland, a policy that is directed in terms of means. This case-specific policy for grassland is where you collect a subsidy if the grassland will be conserved, this policy supports water infiltration. But the policy is created that when you conserve your land with grass for 5 years straight, this land will automatically become conserved grassland which means you are not allowed to cultivate your land anymore. So, farmers will keep cultivating their land within 5 years because of this policy. These inconsistent policies create uncertainties for farmers which influence the investments and farmers willing to participate. *'Well, what we all miss is vision. Because from the central government, it's only reacting and certainly not governing.'* (Personal communication, Farmer 15, 10-4-2024).

To continue the lack of a vision for the future, coupled with the government's policy driven by means, leads to the government not being able to fulfill promises. Consequently, the gap between farmers and policymakers widens, making conversations increasingly difficult. *'Yes, policy changes much faster, really swinging from left to right. Regarding investments, they are often substantial, and I run a small business. But that's mainly because policy changes rapidly. I don't mind investing, but you can't rely on it anymore because you don't know if what you buy today will still be applicable tomorrow. And in my view, policymakers often have too much distance from practical matters. So, a nice policy, but practically unfeasible or unworkable. But above all, inconsistent. Not long-term. Which is why I lack trust. Because what is true today can be different tomorrow.'* (Personal communication, Farmer 12, 26-3-2024).

Farming practice

Farming practice has shown to be a barrier for the implementation of flood adaptive measures, particularly among retiring farmers. They perceive significant changes in the practical execution of farming. While it used to be more focused on hands-on farming practices, there is now greater emphasis on paperwork due to stringent policies and compliance requirements. *'Previously, we were simply working hands-on in practice. Nowadays, there's also a lot of paperwork to fill out.'* (Personal communication, Farmer 12, 26-3-2024). Consequently, the joy of farming has diminished for these farmers, and they find themselves overtaken by the transition of farming caused by the focus on climate adaptive measures with all the paperwork. According to them, the craftsmanship of the farmer is lacking. They observe that the agricultural sector has undergone substantial transformation. Another farmer mentioned the specific governmental policy of the GLB as a barrier because of the time-intensive registration: *'We have to do it all over again, so we just filled in the whole GLB stuff 3 or 4 times.'* (Personal communication, Farmer 10, 19-2-2024).

'That horizon keeps getting closer due to the changing policies.' (Personal communication, Farmer 5, 8-4-2024). Due to changing policies, the future is approaching rapidly for farmers. This means that there will be limited time to adapt their farm to these policies. And time is needed to adapt farming practices according to the new flood adaptive policies.

Beliefs, attitudes, and individual capabilities

The lack of a clear vision for the future is a barrier for farmers, although according to the interviews their own beliefs, attitudes, and individual capabilities are so strong for farmers that these barriers are not influential. A respondent mentioned initiating a flood adaptive measure, a pilot for water drainage

in Utrecht, because of his strong will to implement these measures: *'I initiated it together with R and asked the province of Utrecht. We also conducted an experiment in collaboration with Utrecht and with some permission from the water board and the municipality in particular, we were also positive about trying out water drainage systems to actually prevent soil subsidence, in other words, peat oxidation.'* (Personal communication, Farmer 9, 9-2-2024). Besides this opinion, another respondent questions climate change: *'Only then can that be attributed to climate change? Yes, some parties attribute all that to that. So every decade has something that it is about.'* (Personal communication, Farmer 1, 22-2-2024).

4.2.2 Enablers to the implementation of flood adaptive measures

Financial support & market forces

Besides barriers to financial support & market forces, farmers experience governmental support as an enabler. Financial support is mentioned to motivate farmers to implement climate adaptive measures. Farmers mention making use of this support by the company Friesland Campina. A respondent mentioned being glad about the financial support, according to the respondent becoming a biological farm was made possible only because of the support. *'So it is nice that you get help with that. Yes. Because otherwise, you wouldn't have that made.'* (Personal communication, Farmer 14, 5-4-2024). So governmental support also enables the implementation of climate adaptive measures by farmers.

Information dissemination

Transparent, open, and honest communication may be present, but it cannot be definitively stated whether this is indeed the case for farmers. Therefore, there are no sufficient results to be mentioned. They indicate that they are often open to various forms of contact and communication, but not solely on the terms set by policymakers.

Institutional settings & regulations

Farmers recognize the importance of policy and therefore advocate policy as an enabler for the implementation of climate adaptive measures. However, there is still a lack of well-coordinated and clear policy, which means that policy does not yet serve as an enabler. A respondent formulated difficulties of policies implemented in Gelderland: *'Well, that is an example that we also encounter, is the plowing ban in the Natura 2000 area.'* (Personal communication, Farmer 15, 10-4-2024). Unfortunately, because of this lack of clear policy, regarding the participation process this farmer was left out during participation sessions with stakeholders. Therefore, only big collectives and companies were involved like Staatsbosbeheer and Doornik Natuurakkers together with policymakers of the province Gelderland.

Farming practice

Farmers see various climate challenges approaching in the future and want to proactively anticipate them by consciously managing their businesses to the changing environment. *'The initiative came from us.'* (Personal communication, Farmer 2, 21-3-2024). The quote specifically refers to a farmer from Noord-Brabant discussing a sub-irrigation system designed to retain water during dry summers. He initiated this approach because he is keenly aware of the impending changes and wants to adapt accordingly. This is just one example, among the interviewed farmers everyone initiated new systems or is proactively in the implementation of climate adaptive measures for their farms.

Beliefs, attitudes, and individual capabilities

Several farmers are motivated by their beliefs and attitudes towards climate adaptive measures. Farmers experience intrinsic motivation for business operations from a climate and environmental

perspective. *'I fully support what we are doing now. Yes, and that's where I experience the most satisfaction from my perspective.'* (Personal communication, Farmer 15, 10-4-2024). This statement illustrates how the farmer experiences intrinsic motivation and therefore will be likely to implement the water drainage system. Other initiatives like pilots show intrinsic motivation for the benefit of the environment and climate. A farmer says about the pilot focused on an agricultural drainage system in Utrecht: *'I see this as an investment in the area. So that's how I look at it. Personally, we didn't benefit from it.'* (Personal communication, Farmer 11, 20-3-2024). The quote suggests the importance that is experienced by the farmer of climate change and therefore would even implement and cooperate with projects that are not in favor of their financial business model but are in favor of their motivation and attitude towards the environment.

Indirect incentives for farmers to implement climate adaptive measures are driven by legal approval. A farmer expresses himself about this: *'Well, if you build a machine that pretends to be good for the environment, for example, those stable floors. Then you do everything you can to get those stable floors legally approved. Once you have been legally approved, you think you are in, but that is the motivation and the motivation is not that it is so good for the company, the environment, the farmers, the end of everything.'* (Personal communication, Farmer 5, 8-4-2024). This statement implies the latter group includes farmers who engage in or intend to implement climate adaptive measures, driven by motivations other than climate concerns. Another farmer sees meeting the climate requirements for a company like Friesland Campina as *'Nice incidental catch.'* (Personal communication, Farmer 2, 21-3-2024).

In addition to these remarks, farmers express their motivation to implement climate-adaptive measures because they aim to maintain a sustainable business while ensuring proper care for their land to maintain its sustainability. This commitment is not only for their business continuity but also for the benefit of their children who may take over in the future.

Chapter 5. Discussion

The results of this study are interpreted and examined highlighting the most prevalent themes that emerged during the interviews. These themes are discussed based on the experienced barriers and enablers for participating and implementing climate adaptive measures for flood events.

5.1 Discussion points

The barriers and enablers of participation and implementation are illustrated separately in the Result section. From the results, as also evident in the overview provided in the theoretical framework, it appears that it is not the isolated barriers and enablers that are decisive for the implementation of climate adaptive measures. Instead, the barriers and enablers act as factors that interact to determine whether the implementation of measures will take place. In this interplay, the relations between these factors come to light, leading to several discussion points. These discussion points will be elaborated next.

5.1.1 Uncertainty of governmental support limits implementation of flood adaptive measures by farmers

According to the data, financial resources occur as a theme, which influences the implementation of climate adaptive measures and the participation process for the implementation of these climate adaptive measures. According to data farmers experience a lack of consistency concerning governmental support like subsidy for implementing the emission-reducing stable floor, which is included in the GLB. The data of this research shows governmental funding for this climate adaptive measure is experienced as erratic and inconsistent which brings a lot of uncertainties for farmers. It is inconsistent because farmers have no certainty about the amount of the funding and the duration of the funding. Different factors play a role in these erratic and inconsistent fundings. Like the practical example of the climate adaptation of emission-reducing stable floors. A specific example of erratic policy development was implemented in the policy document GLB and later removed from this policy document. The removal of this policy involves big consequences for Dutch farmers if the investment of the new stable floor was already made farmers would be left paying for the investment which is not even legally approved.

While subsidies are available for implementing the flood adaptive measure of the water drainage system pilot in Utrecht and Zuid-Holland, there is no compensation for participating for this implementation. However, most farmers still engage in participation due to their intrinsic interest in improving their businesses. Nonetheless, some farmers hesitate to participate because they fear being bound by obligations once they start. The danger is that a change in climate policy or the formation of a new cabinet could question the consistency of subsidies, making the inflow of governmental support uncertain. Farmers have experienced that several flood adjustments have been made to their farms to collect subsidies which later expire. In the context of Natura 2000 areas, the farmer is obligated to cultivate nature-inclusive vegetation, predominantly clover. However, this practice attracts a significant population of geese, resulting in land depletion and rendering it unsuitable for livestock grazing. Previously, the province Gelderland offered a subsidy for compensation, but this has been terminated, leaving the farmer to face the financial repercussions, making the situation economically unviable. In this way, farmers emphasize the uncertainty of governmental support and that they cannot build a future-proof business model based on governmental support. With the changing climate policies, the market forces provide a more stable business model for the experience of farmers. A farmer reports depending on the program provided by Friesland Campina, where conventional farms receive financial incentives through a transition arrangement that facilitates a shift to organic farming. Without this specific support, transitioning to organic farming would not have been feasible. The first examples of

lack of governmental support enlighten the distrust in the governmental body that farmers experience and detest. Ultimately, it does not contribute to the overall goal of sustainable (long-term) business operations. There is a lack of trust and credibility experienced by farmers. Consequently, the research shows farmers are more inclined to be driven by business models rather than financial support, like subsidies. This is because these policies do not contribute to formulating a clear vision. The research shows this policy is erratic because it is driven by reacting to short-term climate-related issues and problems, rather than orienting toward a long-term climate adaptive vision where clear goals for the agricultural sector are lacking. As a result, farmers lack a horizon to work towards.

5.1.2 Farmers get lost due to the lack of vision, will they find their way back?

The lack of a horizon is shown in the data of this research. According to the data of this research, there is a lack of specific requirements due to a lack of vision for the agricultural sector in the Dutch rural areas.

The lack of vision creates uncertainties, and it can be interpreted that farmers are feeling anxious about the future. Distrust emerges for farmers because of the continuously changing policies. Created policies are driven in terms of means instead of goal-oriented policies involving having a future vision for the rural areas of the Netherlands. The policy for conservative grassland is driven in terms of means for the benefit of climate adaptation, but as mentioned before results in earlier crop change, thus extra plowing. Unfortunately, the sense of direction is currently lacking. Farmers often feel they are being led from one thing to another without a clear focus. Flood adaptive policies are occurring as a reaction to problems instead of a strong base to enhance participation in flood adaptive implementations.

With the advent of the Paris Agreement in 2016, climate goals have also been set in Dutch policy documents. This is a relatively recent development, which is evident in how climate adaptation is described and applied in the Dutch policy documents. Numerous studies are still underway to understand the precise consequences of climate change for rural areas in the Netherlands. As a result, there is no uniform policy yet for making rural areas climate adaptive. Based on the experiences of farmers in this research, existing policies have primarily focused on responding to certain extreme weather events that certainly need addressing. This is shown in the GLB, with the introduction of the climate adaptive implementation of the emission-reducing stable floor and policy for maintaining grassland. However, the current emphasis is on short-term solutions to specific consequences, raising the question in this study of whether this approach is the right way to tackle these challenges. Farmers require a long-term vision to adapt their farming practices effectively. Before agricultural practices can evolve, a foundation is necessary, allowing farmers time to implement food adaptive measures in their operations. Therefore, the actual implementation of climate adaptive measures needs specific requirements. My research joins the scholarship of Baker et al. (2012) and the scholarship of Smith (1973) that show the implementation requires specifications which governmental bodies now tend to formulate incoherent policies.

5.1.3 Fragmentation leads to isolation of the agricultural sector

According to the data of this research, there is a lack of participation in the implementation of climate adaptive measures experienced by farmers in rural areas of the Netherlands. Among farmers, there is significant discontent, particularly between organic farmers and conventional farmers. However, even among conventional farmers themselves, small-scale farmers who have less impact on their environment express dissatisfaction towards large-scale farmers. This points to the policy that initially aimed at continuous growth introduced after WO II with plan Marshall, favoring large corporations. The important goal of policy for rural areas was to secure production by business expansion and specialization. The emphasis was on achieving maximum size and intensity, as this was encouraged by the government. The Dutch agricultural sector made a transition from regulations driven by growth to

regulations driven by climate adaptation. This transition brings changes in the craftmanship of farmers, which now is more focused on administration because of the urge for legal approval for the implementation of climate adaptive measures. These changes are not in favor of all farmers which leads to retiring farmers and dissatisfaction by other farmers. The restrictions and regulations for the agricultural sector appear to be getting stricter, and farmers must fend for themselves. This is seen in De Peel and Gelderland because of restoring Natura 2000 areas farmers are obligated by strict regulations. This sentiment is exacerbated by poor communication with the governmental body. Fragmentation exists among various government agencies, making it more challenging for farmers to establish contact with the government. According to the data, farmers experience fragmentation between the different governmental bodies that exist of provinces, municipalities, water authorities, and also entities abroad like Brussel was mentioned by farmers since Europe decides together to enhance climate change. It is not clear for farmers where to turn their requests towards governmental bodies. Farmers are approached by one of these parties, but they perceive a lack of cooperation or engagement among these entities. As a result, farmers feel like pawns being shuffled back and forth between different parties. This complexity makes it challenging for farmers to obtain clear information, leaving their tasks and questions unanswered. The data indicates that farmers express frustration with the fragmentation among various governmental bodies, which complicates climate adaptive policy implementation. Unfortunately, there is no clear point of contact available for farmers within this fragmented environment. Isolation occurs between farmers and policymakers when there is little engagement. This hinders the participation process for climate adaptive measures for flood events between farmers and policymakers. Farmers experienced participation with policymakers for flood adaptive measures as tokenism. Policymakers inform farmers and farmers are involved in the process due to the obligatory nature of the participation process, without any substantial impact on decision-making which leads to farmers feeling unheard. This results in no participation for climate adaptive measures for flood event in Dutch rural areas.

5.1.4 Distrust as the most determining factor for implementation

Distrust manifests in various aspects: skepticism about the future, mistrust due to fragmentation, lack of confidence in governmental bodies, and suspicion within the industry and other financial resources.

Distrust is the consequence of the lack of clear policies in the Dutch rural areas over the past decades. Besides distrust as consequence of no clear policy, distrust occurs as cause of farmers not participating in the implementation of flood adaptive measures. This implies distrust interacts as a wicked problem for the participation of Dutch farmers in the implementation of flood adaptive measures. This research focuses on the perspective of Dutch farmers. According to the data distrust of governmental funding occurs due to the constant change of climate adaptive policies; against fragmentation of governmental bodies that declare different statements towards farmers; and distrust occurs because of the lack of transparent communication. Nevertheless, policy generated in the GLB declares to provide these clear perspectives: *'These various subsidies can be combined to provide clear perspectives for businesses in specific areas and to achieve a sustainable and resilient future.'* (Rijksoverheid, 2022). But farmers mention without trust, there is no base for starting participation with Dutch farmers for the implementation of climate adaptive measures. Consequently, the gap between farmers and policymakers widens, making conversations increasingly difficult.

5.1.5 intrinsically or indirect motivation leads to the same climate adaptive implementations

According to the theoretical framework, besides barriers experienced by farmers for participation in the implementation of flood adaptive measures, there still could occur actual implementation of flood adaptive measures regarding the pilot for water drainage in Utrecht. This could occur because of the strong farmers' motivation which is shown by the data retrieved from the interviews. Farmers'

motivation plays a significant role in the implementation of climate adaptive measures in Dutch rural areas. Farmers’ motivation seems to act as an autonomous external factor within the theoretical framework. It is interesting because following the theoretical framework it is likely actual implementation would occur if enablers for participation in climate adaptive measures as well as enablers for implementing climate adaptive measures occur. But according to the data of this research Dutch farmers are strongly motivated to implement climate adaptive measures in Dutch rural areas. A distinction of this strong motivation is made. On the one hand, farmers feel intrinsically motivated to implement climate adaptive measures and on the other hand, farmers feel indirectly motivated to implement climate adaptive measures.

Intrinsic farmers’ motivation refers to farmers who implement climate adaptive measures because they feel the intrinsic urge to enhance climate adaptation within their farming practices. Indirect farmers’ motivation refers to farmers who implement climate adaptive measures for other purposes. These purposes differ but are mostly focused on enhancing a sustainable business model to continue farming for themselves or later for their children. Their motivation can be so strong that they proceed with the climate adaptive implementations despite challenges or suboptimal participation processes. Interestingly, the strength of this motivation is not explicitly considered in existing theories. However, the research data highlights its significant impact on the implementation of climate adaptive measures.

5.1.6 Do farmers implement climate adaptive measures independently of a participation process?

For this research, the specific cases are observed and reviewed. According to this review, the cases are placed in table 5.1 whether there is participation experienced and whether climate adaptive measures are implemented. As seen in table 5.1, 6 out of the 15 cases show a sound participation process results in the actual implementation of climate adaptive measures (left upper corner). Also, 3 out of the 15 cases show there is no participation process which results in no implementation of climate adaptive measures (right bottom corner). These findings correspond with research done on policy implementation by Smith (1973) and Baker et al. (2012). However, this research shows due to strong farmers’ motivation an extra possibility occurs where even without a participation process farmers are still motivated and implemented climate adaptive measures (left bottom corner). The numbers in table 5.1 correspond with the numbers in the given overview of interviewed farmers in table 5.2.

Table 5.1: Overview of participation and/or implementation occurring in the specific cases (self-created, 2024).

		Implementation			
Participation		YES		NO	
YES		(5)	(6)	(8)	
		(9)	(10)	(11)	
NO		(1)	(2)	(12)	
		(13)	(14)	(15)	
			(3)	(4)	(7)

Table 5.2: Overview of interviewed farmers based on soil type and sector (self-created, 2024).

Indicated number for the farmer	Soil type	Type of farmer
1	Sandy soil	Agriculture
2	Sandy soil	Dairy farmer
3	Sandy soil	Dairy farmer
4	Sandy soil	Dairy farmer
5	Sandy soil	Biological dairy farmer
6	Sandy soil	Agriculture
7	Sandy soil	Dairy and pig farmer
8	Clay soil	Biological dairy farmer
9	Clay soil	Biological dairy farmer
10	Clay soil	Agriculture
11	Clay soil	Dairy farmer
12	Clay soil	Biological agriculture
13	Clay soil	Biological dairy farmer
14	Clay soil	Biological dairy farmer
15	Clay soil	Biological horse farmer

Chapter 6. Conclusion

The concluding chapter of this research addresses the main research question by initially responding to the sub-questions. This research aimed to give insights into farmers' experienced barriers and enablers for participation and implementation of climate adaptive measures in Dutch rural areas. To gain more insights, the following research question was used:

To what extent and how can farmers' participation support or hinder the implementation of climate adaptive measures for flood events in Dutch rural areas?

To answer this main research question, three sub-questions were formulated.

1. How is participation in climate adaptation defined and how can it be achieved?

Climate adaptation in essence includes the measures that have been taken to adjust to the effects caused by climate change (European Environment Agency, 2023). Climate adaptation focuses on enhancing society's resilience to the changing climate and minimizing vulnerabilities.

Public participation is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future (Arnstein, 1969). Public participation is a strategy that enables participants to determine what policies are set and how information is shared. To enhance climate adaptation in society public participation serves policymakers in determining the public interest in climate adaptation. To achieve participation in climate adaptation according to Arnstein (1969), is how participants can induce significant social reform to share in the benefits of society, to gain real power. For achieving public participation research by Mees et al. (2019) shows the importance of the role of the government. The role of the government in an ideal situation for implementing climate adaptive measures is to facilitate and enable.

2. What are possible barriers and enablers in participation processes according to the literature?

Based on the theoretical framework, five dimensions of barriers and enablers of participation occur. These five dimensions of barriers and enablers of participation are financial support & market forces, information dissemination, institutional setting & regulations, farming practice, and beliefs, attitudes, and individual capabilities. This provides an overview of barriers and enablers experienced by farmers in the participation process.

Lack of leadership is seen as one of the main barriers to public participation (Howat et al., 2001). But also barriers such as lack of financial support are experienced, in the high value of agricultural land this barrier can hinder expansion and sustainable use of farmland. Besides the costs of land, the agricultural sector is time-intensive (Kühne et al., 2013). Additionally, barriers such as no open communication because of an unsafe environment or not objective information obtained are experienced in the participation process (Kühne et al., 2013). On top of that farmers depend on the weather for their activities at the company which is most of the time not included in bureaucratic participation processes (Kühne et al., 2013). And lastly, barriers that influence knowledge, awareness, and what farmers think is negative attention, which results in less cooperation in participation (Kühne et al., 2013).

Besides these barriers, enablers that emerge to participation processes include financial support and ancillary activities that form income diversification by expanding their business with new activities. Information from outside the sector enables participation because it prevents farmers from being one-sidedly informed (Kühne et al., 2013). Additionally, a sense of responsibility and ownership enables

the participation process (Mees et al., 2019). The mentioned barrier of dependency on weather provides an enabler of a calm period when the weather is bad. And lastly, well-developed network skills promote the exchange of knowledge which enables the participation process (Kühne et al., 2013).

3. How can participation contribute to the implementation of climate adaptive measures according to the literature?

Besides the overview of experienced barriers and enablers of participation, an overview of the barriers and enablers of the implementation process is conducted using the same five dimensions. These barriers and enablers are experienced by farmers during the implementation process. These barriers and enablers give an overview of the probability climate adaptive measures will be implemented by farmers. These barriers and enablers influence the implementation of climate adaptive measures. Climate adaptive measures need to be implemented which asks for cooperation between farmers and policymakers to overcome barriers to implementation. According to Mees et al. (2019) this cooperation can be achieved by emphasizing good communication, collaboration, and facilitating networks among farmers. By doing so, a partnership can be developed where the influence of the participation process contributes to the implementation of climate adaptive measures because public participation supports farmers' involvement which enhances acceptability (Lee et al., 2003). Therefore, public participation leads to better implementation of climate adaptive measures in rural areas (Wirth, 1996).

To what extent and how can farmers' participation support or hinder the implementation of climate adaptive measures for flood events in Dutch rural areas?

According to the data of this research, by the experienced barriers and enablers by farmers for the participation and the implementation of climate adaptive measures, five points of key emerge to be of great influence on the actual implementation of climate adaptive measures in Dutch rural areas. Financial resources are needed for the actual implementation of climate adaptive measures in Dutch rural areas according to the farmers. Climate adaptive measures require significant investments, which many farming businesses cannot afford without financial support. Additionally, farmers indicate that a clear vision for the future of the Dutch rural areas is currently lacking. Such a vision could guide the implementation of climate adaptive measures. It would empower farmers to actively contribute to climate goals. Another crucial point raised by farmers is the need for engagement. By this, they refer to maintaining communication with policymakers regarding rural area implementations as well as fostering ties with society to prevent isolation of the agricultural sector. Across all these aspects, the prevailing issue is distrust among farmers. Distrust acts as a significant barrier, hindering both participation and implementation processes for climate adaptive measures in Dutch rural areas. While farmers express willingness to participate, the damage to trust impacts this process. Nevertheless, farmers' motivation appears to be key for farmers to implement climate adaptive measures in Dutch rural areas. This strong farmers' motivation results in the actual implementation of climate adaptive measures in Dutch rural areas even though there is no participation process. So, the participation process supports the implementation of climate adaptive measures in Dutch rural areas. However, even without a participation process, climate adaptive measures could be implemented.

Public participation plays a crucial role in supporting farmers' engagement, thereby enhancing overall acceptability (Lee et al., 2003). Consequently, active public involvement leads to more effective implementation of climate adaptive strategies within rural regions (Wirth, 1996). Therefore, farmers' participation establishes a collaborative partnership, wherein the impact of the participation process contributes to the successful implementation of climate adaptive measures for flood events in Dutch rural areas.

Chapter 7. Recommendations

This section critically examines the limitations and strengths of this research. By addressing the limitation, the aim is to provide an understanding of the constraints and potential biases that may have influenced the results. Addressing the strengths of this research provides an overview of favorable factors of the research.

7.1 Recommendations for further research

In this study, the impact of farmer participation on the implementation of climate-adaptive measures in Dutch rural areas is examined. To comprehensively understand the participation process, the research on public participation is integrated with the government's role in this context. This research highlighted the significance of participation processes for effective climate adaptation in Dutch rural areas, with insights into the government's potential contributions. By focusing on farmers' perspectives, we identified their roles and emphasized the importance of government support in implementing climate-adaptive measures. Further research on the farmer's specific role to overcome the distrust in this context is needed.

Additionally, this study provides a theoretical framework to elaborate on the barriers and enablers farmers encounter during the adoption and execution of climate adaptive measures in Dutch rural areas. Drawing from these perceived barriers and enablers, several key discussion points emerge. Notably, farmers express distrust not only toward policymakers but also toward the entire government. This research indicates that distrust significantly influences the participation and implementation processes of climate adaptive measures. Further investigation is necessary to quantify the extent of farmers' distrust and its impact. Further investigation should be conducted into the origin of this distrust to generate follow-up steps on how to restore this trust. Additionally, the perceived barriers and enablers reveal that farmers' motivation to implement climate adaptive measures extends beyond formal participation mechanisms. Their motivation is so strong that even in the absence of a structured participation process, these measures are implemented. This underscores the importance of intrinsic motivation alongside external factors. Our findings suggest that farmers' motivation may arise from a genuine affinity for climate adaptation or indirectly due to the additional benefits associated with implementing climate adaptive measures. Future research should explore how these distinct forms of motivation ultimately shape the implementation of climate adaptive measures in Dutch rural areas.

Lastly, the participation in the implementation of climate adaptive measures for flood events in Dutch rural areas was investigated. Research specifically addressing floods in Dutch rural areas with such measures being implemented remains scarce. Much of the existing work in this domain consists of pilot projects, resulting in limited comparative data. Additionally, politics play a significant role in the implementation of climate adaptive measures in Dutch rural areas. Given the dynamic nature of politics, longitudinal research on this phenomenon is strongly recommended. To assess the impact of participation in the implementation of climate adaptive measures in Dutch rural areas, it is essential to consider the consequences for rural areas. Climate adaptation is a relatively new field, warranting further investigation. Therefore, studying the effects of participation over multiple seasons is crucial, as the agricultural sector experiences varying conditions throughout the year. Longitudinal research in this context is highly recommended.

7.2 Reflection on limitations & strengths

- The literature review on variables for the experienced barriers and enablers of participation and implementation of climate adaptive measures served as the foundation of this study. Based on these literature reviews, 15 barriers and 15 enablers of participation and implementation were identified and incorporated into the operationalization. The experienced barriers and enablers

of Dutch farmers in participation in implementing climate adaptive measures influence the actual implementation of these measures. However, the analysis and discussion revealed these outcomes of the experienced barriers and enablers were not conclusive for the actual implementation of climate adaptive measures in Dutch rural areas. Because of the occurrence of two themes of key namely distrust and farmers' motivation. These key themes showed the possibility of an actual implementation of flood adaptive measures even though the participation process was lacking. This resulted in an extra dimension of the theoretical framework which enriched the framework with the extra box showing an overview of whether there is participation yes/no and implementation yes/no.

- In this research a total of 15 interviews with Dutch farmers were conducted. It was not easy to get in touch with farmers for my research. For the interviews, I approached the farmers based on my contacts, my internship company, and the policymakers that I got in contact with. Because of this approach, a natural selection of farmers who are likely to participate in projects was ultimately made. Therefore, the sample of interviewed farmers could be concentrated on farmers who are more likely to participate in implementing climate adaptive measures which could influence the outcomes of this research. So, although the farmers were randomly selected, the method of selection could potentially influence the group of farmers approached for this study. Additional research is necessary to determine whether this sample has any influence on the results of the data.
- To enhance the validity of this research, triangulation was used by incorporating several data sources such as academic literature, semi-structured interviews, and policy documents. Nonetheless, it became clear that the availability of policy documents, that could validate the academic literature and the outcomes of the semi-structured interviews, was limited. Policy documents were still in progress because of the relevance of this research field that takes place now. This study was conducted over 10 months in the year 2023/2024. During this time, due to the reform of the Dutch cabinet, there were significant political uncertainties and changes. This specific event influenced policy formation. For future studies, it is recommended to conduct longitudinal research. This approach would mitigate the influence of external factors such as political changes on the research outcomes.
- For this study, I conducted interviews with 15 farmers at their homes. This attempt involved extensive travel through the river regions of the Netherlands. Despite the logistical challenges, I believe that interviewing farmers in their own environment enhances the research outcomes. The comfortable setting allows for open conversations. Moreover, gaining insight into their businesses, families, and overall lives provides a holistic perspective. Notably, this study reveals that farming is more than just a profession; it is a way of life. This intrinsic connection makes the topic and the challenges within the current agricultural sector particularly nuanced. By adopting a personalized approach to interviewing, I integrated the human dimension into this research. I consider this approach a significant strength, as it explores the perceived barriers and enablers of Dutch farmers in participation in implementing flood adaptive measures.
- Lastly, this research conducts insights into the experienced barriers and enablers for Dutch farmers. With this research a rich overview is generated of the experienced barriers and enablers by farmers and insights into factors that influence the participation process for farmers are gained. However, because of the farmer's focus, there are no insights into the experiences of policymakers in this research. Therefore, additional research is necessary to determine what influences policymakers in participation and the implementation of climate adaptive measures in Dutch rural areas. For now, the strength of this research is the insights of the experiences of farmers.

7.3 Recommendations for praxis

In the introduction of this research, it was suggested that when it comes to the actual implementation of climate adaptive measures in Dutch rural areas the lack of participation fails the actual implementation. The participation process is lacking due to the obligatory nature of this process and the participation process with farmers does not influence the outcomes. This lack of good participation results in distrust among farmers which widens the gap between policymakers and farmers. Therefore, this research investigated the experienced barriers and enablers of farmers. Based on these results, some recommendations can be given to farmers and policymakers.

Recommendations for policymakers

- An important barrier mentioned by farmers is the lack of transparent information and the lack of dialogues in the participation process. Consequently, this leads to poor information dissemination which influences the participation process. It is advised to prioritize the engagement of farmers within policy implementation by developing transparent communication and starting a dialogue with farmers. Transparent communication is mentioned by the farmers as a requirement for a good participation process in implementing climate adaptive measures for flood events. Transparent communication can be ensured by satisfying two conditions. Firstly, policymakers must incorporate farmers into the process from the outset. This can be accomplished by disseminating information to farmers during the policy formulation process and involving them in decision-making. Consequently, farmers will be informed about developments in rural areas and will actively influence policy decisions. Furthermore, transparent communication extends beyond this initial stage; maintaining close contact with farmers during the execution phase is essential. This can be achieved through the regular distribution of newsletters or emails, as well as organizing brief periodic meetings where policymakers and farmers can interact, pose questions, and engage in discussions.
- Another straightforward yet crucial task for policymakers involves the manner of communication. Farmers indicate that the current participation process often remains a one-sided information exchange, with policymakers predominantly disseminating information. However, this approach does not align with effective and pleasant conversations, as reported by farmers. Adopting an alternative conversational approach could significantly enhance the interaction between farmers and policymakers. It is imperative for policymakers to actively listen during conversations, a factor that is currently underutilized.
- Another experienced barrier by farmers is the lack of consistency regarding financial resources. Governmental support is experienced as erratic, ad hoc, and uncertain. Therefore, farmers are not likely to collaborate for the implementation of climate adaptive measures. The lack of vision and consistency results in uncertainties for farmers and farmers tend to cooperate rather based on market forces instead of participating with governmental bodies. In this context, it is imperative to formulate a sustainable vision for rural areas. Achieving this goal necessitates substantial knowledge and expertise, which should be seamlessly integrated into the vision development process. The agricultural sector's reliance on annual harvest seasons means that, within a 4-year timeframe, only 4 opportunities for implementing changes arise. Considering the relatively short election cycle (every 4 years) for the Dutch government, it becomes crucial to extend the vision beyond this temporal constraint. While allowing for nuanced adjustments, the overarching vision must be established with a long-term perspective. This entails maintaining a comprehensive framework without overly prescriptive regulations, enabling farmers to navigate their course based on their expertise.
- The data shows the experienced role of government by farmers is regulating and stimulating. This is experienced by farmers through financial support, which is still lacking, and the

development of strict policies for the agricultural sector. The desired roles for the government formulated by farmers of Dutch rural areas are the roles of network steering and facilitating/enabling. Therefore, policymakers can foster collective initiatives that farmers can participate in, thereby aligning farmers' interests. These collectives can be promoted at the municipal level by establishing a social platform and organizing regular meetings. For larger issues that transcend municipal boundaries, these local collectives can quickly address them by scaling up. This process involves inviting a select group of spokespeople from each collective to engage in addressing broader concerns.

- A significant barrier identified through policy document research and interviews with farmers is the lack of clarity regarding climate adaptive measures for flooding. The overarching theme of climate adaptation remains ambiguous for many farmers. To address this, a comprehensive platform can be launched, consolidating all climate adaptation knowledge related to rural areas in the Netherlands. Such a platform would provide a clear overview of information, alleviating uncertainties for both farmers and policymakers. Achieving this requires expertise from both scientific and agricultural perspectives. Policymakers are tasked with aggregating and launching this knowledge on the Dutch government website, ensuring accessibility for all. It is essential to not only explain the theme of climate adaptation but also establish a direct link to the agricultural sector by incorporating practical aspects such as harvest seasons.
- Lastly, farmers experience fragmentation between different governmental bodies nowadays. This leads to unclear directions and no place for farmers to safely ask questions and get advice. The absence of well-defined points of contact within Dutch government organizations results in disorder. Farmers are unsure which governmental entity to approach for their inquiries of flood adaptive measures, leading to wasted time. Establishing a centralized governmental body for requesting, allocating, and inquiring about climate adaptive measures for flood events is essential. This approach enhances accessibility for farmers, enabling effective collaboration with the government and streamlining the participation process.

Recommendations for farmers

- According to the literature, the importance of collaboration is shown for actual implementation for climate adaptive measures in Dutch rural areas. Therefore, it is advised to keep in touch with policymakers by attending the participation process and get involved in dialogues. In this context, it is crucial for farmers to actively engage with policymakers. This involves staying informed about new developments in rural areas. Research has already demonstrated that the transition in rural areas results in an increasingly significant role for social networks. Within this network lie the contacts that can facilitate the transfer of essential information. It is recommended upon farmers to build and maintain this network. To achieve this, maintaining contact with colleagues in the region is essential, as well as establishing connections with municipal or provincial authorities. Sustaining this network requires active participation in collectives and regular attendance at meetings or other networking events.
- Farmers express that they feel unheard in the participation process for implementing climate adaptive measures. They indicate that they are overshadowed by major stakeholders such as municipalities or provinces. Therefore, farmers need to unite and collectively voice their concerns. Joining a collective is a way to achieve this. Several collectives already exist for farmers, such as LTO, an association of farmers dedicated to advocating for agricultural interests.
- The data from the research indicate that the agricultural sector is becoming isolated. As a result, farmers are increasingly distanced from policymakers and society. To prevent this, farmers need to be aware of the changes affecting Dutch rural areas. Climate change poses significant

challenges, particularly for the agricultural sector. Given the increasing prevalence of climate-related issues, farmers need to familiarize themselves with these matters. Currently, agricultural practices are based on harvest times, but this will gradually shift toward an agenda centered around climate adaptation. While this task remains somewhat unclear, further research on climate adaptation in the agricultural sector is necessary. Scientists lead these efforts, but it is upon farmers to be receptive and, where possible, facilitate such research on their lands.

- In addition to providing access to their farms for climate adaptation research in Dutch rural areas, farmers serve as experts. They possess firsthand knowledge about optimal land management, groundwater levels, crop responses to extreme rainfall, and harvest readiness. Currently, policies often overlook farmers' expertise. To successfully implement climate adaptive measures in Dutch rural areas, it is crucial for farmers to actively share their insights, advice, and expertise on timing and implementation methods. Policymakers should facilitate this exchange of knowledge, emphasizing effective communication between farmers and relevant stakeholders. However, farmers must communicate their expertise, ensuring that relevant issues are brought to their attention. Thus, farmers must actively offer their knowledge.
- Farmers have expressed concerns that current policies disproportionately emphasize minor restrictions. For instance, consider the concept of 'conservative grassland.' If a field is cultivated as grassland for five consecutive years, it automatically receives this designation, prohibiting farmers from planting other crops on that land. While this measure aims to reduce plowing, it inadvertently leads farmers to begin plowing after only four years and switch to alternative crops to avoid the conservative grassland classification. Similar examples exist in other policies. Implementing regulations in this manner places significant burdens on farmers and curtails their freedom, potentially hindering climate adaptation efforts. To address this, farmers must engage transparently with policymakers, offering timely insights to prevent the adoption of impractical policies. Ultimately, farmers play a crucial role in ensuring the practical execution of policies.

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Appendices

Appendix 1: Overview quotes

In this appendix, you find an overview of Dutch quotes from the interviews with the corresponding English translation.

Translated English quotes	Original Dutch quotes
4.1.1 Barriers to participation	
<i>'Then I just went there for nothing, so to speak. But then I said to another farmer everyone who is here gets paid. It is just his or her job. And we are coming to add something there as well.'</i>	'Toen ben ik daar zeg maar voor niks gewoon heen gegaan. Maar toen zei ik daarna tegen een andere boer wel van ja, iedereen die hier zit krijgt gewoon betaald. Het is gewoon zijn of haar baan. En wij komen daar eigenlijk ook iets toevoegen.'
<i>'We're always afraid that if we participate, we'll be stuck with it.'</i>	'Wij zijn altijd bang dat als we ergens aan meedoen dat we er dan aan vastzitten.'
<i>'I think the intention of the staff is good. However, it's about experiencing how communication is received. Because communication also involves listening. It's about understanding how it lands.'</i>	'De bedoeling denk ik van de medewerkers is goed. Alleen het ervaren van hoe komt de communicatie nou aan. Want communiceren is ook luisteren. En dat is ook nagaan van hoe valt het.'
<i>'But often, when big plans are made, there's an obligation to communicate, and that's how it feels.'</i>	'Maar vaak is het zo als er grote plannen worden gemaakt dan hebben ze een verplichting om te communiceren en zo voelt dat dan ook.'
<i>'Contact is not personal, often through email or letters.'</i>	'Nee, contact is niet persoonlijk, vaak via de mail of brieven.'
<i>'And there you stand as a farmer with good intentions, and then it either falters on legal grounds or trust.'</i>	'En dan sta je daar als boer zijnde met je goede bedoelingen en dan loopt het ofwel spaak op juridisch vlak of op vertrouwen.'
<i>'I also believe it's beneficial for policymakers to occasionally walk alongside the sector they're responsible for.'</i>	'Ik denk ook dat het goed is als beleidsmedewerkers gewoon een paar keer per jaar meelopen in de sector waar ze verantwoordelijk voor zijn.'
<i>'Yes, the harvest period is too busy, but in the summer I also make time for it when it is important.'</i>	'Ja de oogstperiode is het te druk, maar in de zomer maak ik er ook wel tijd voor als het belangrijk is.'
<i>'Only, back then you were still in a goal of only growth.'</i>	'Alleen, toen zat je nog wel in een doel van alleen maar groei.'
4.1.2 Enablers of participation	
<i>'I'm not a fan of subsidies. Of course, we also make use of that, because yes it is money that is available. Why wouldn't you do it as an entrepreneur? You always do that, but of course I would prefer it to be paid for from the market.'</i>	'Ik ben eigenlijk geen fan van subsidie. Wij natuurlijk maken wij daar ook gebruik van, want ja het is geld wat beschikbaar is. Waarom zou je het niet doen als ondernemer zijnde? Doe je dat altijd, maar het liefst zou ik hebben natuurlijk dat het vanuit de markt betaald wordt.'
<i>'Previously, we were simply working hands-on in practice. Nowadays, there's also a lot of paperwork to fill out.'</i>	'Vroeger waren we gewoon echt aan het werk, we hadden praktijk. Tegenwoordig is het ook dat je van alles moet invullen.'

<i>'We have to do it all over again, so we just filled in the whole GLB stuff 3 or 4 times.'</i>	'Moeten we weer opnieuw, dus we hebben gewoon 3 of 4 keer hebben wij heel dat GLB geneuzel ingevuld.'
<i>'That's why I also participate in excursions; it's important to keep talking to each other and to receive feedback.'</i>	'Daarom doe ik ook wel die excursies, het is wel belangrijk om met elkaar in gesprek te blijven. En ook feedback te krijgen.'
<i>'Some things are very confusing to me with those nitrogen floors, I don't understand it myself anymore. That's just the communication. But if something is clear about, nitrogens being chargeable, this has to happen in the sector, if that is said, then you immediately start doing something about it. Then you know what to do.'</i>	'Sommige dingen zijn voor mij heel verwarrend met die stikstofvloeren, ik snap er nu zelf ook niks meer van. Dat is wel echt gewoon de communicatie. Maar als iets duidelijk is van, stikstoffen zijn verlastbaar, moet er dit gebeuren in de sector, als dat gezegd wordt, dan ga je daar meteen iets mee doen. Dan weet je wat je moet doen.'
<i>'Yes, for example, we have level-controlled drainage. So yes, there are already examples where you try to make the best possible use of the available possibilities.'</i>	'Ja, We hebben bijvoorbeeld peil gestuurd drainage. Dus ja, daar zijn al voorbeelden waarbij je eigenlijk al zo goed mogelijk gebruik probeert te maken van de mogelijkheden die er zijn.'
4.2.1 Barriers to implementation	
<i>'But the thing is in the Netherlands you can if you want to take certain steps, you cannot ignore those agencies. You need it. And, unfortunately, that is also where things sometimes go wrong. There are a lot of farmers who want to do a lot on their own. Seeing a lot of opportunities only those that are very inhibited by the bureaucracy, so to speak, in the Netherlands.'</i>	'Maar het ding is in Nederland kan je als je bepaalde stappen wil nemen, kan je niet om die instanties heen. Die heb je nodig. En, dat is helaas ook meteen waar het nog wel eens wil spaak lopen. Er zijn heel veel boeren die heel veel uit zichzelf willen doen. Heel veel kansen zien alleen die heel erg geremd worden door de bureaucratie eigenlijk om het zo maar even te noemen in Nederland.'
<i>'Yes, so I try to maintain that consistency myself.'</i>	'Ja, dus zelf die continuïteit eigenlijk proberen aan te houden.'
<i>'I think the subsidy is more of an obstacle than a motivation. I think the subsidy is very bad because I often think it has to go back to the business model. There must be a business model in there. And of course, sometimes a helping hand such as a subsidy can help you.'</i>	'Ja, alleen ik vind subsidie, dus eigenlijk is het meer een belemmering dan een drijfveer, want ik vind de subsidie eigenlijk gewoon heel slecht. An zich, weet je, dingen subsidiëren, het moet terug naar het verdienmodel. Daar moet een verdienmodel in zitten. En natuurlijk hoor, soms helpt een steuntje in de rug als een subsidie je wel.'
<i>'We milk cows, Lely milks us.'</i>	'Wij melken koeien, Lely melkt ons.'
<i>'You are directed by sales in certain directions.'</i>	'Je wordt door de verkoop bepaalde richtingen op gestuurd.'
<i>'Extensive farmers, both conventional and organic, are now paying the price for the mismanagement of the past 40 years.'</i>	'Extensieve boeren, gangbaar en biologisch betalen nu de prijs voor het wanbeleid van de afgelopen 40 jaar.'
<i>'We should act more as a single government entity, with all levels of government coming together at one table.'</i>	'Meer acteren als één overheid, dus alle overheden aan één tafel.'
<i>'However, as a steering committee, we risk becoming disconnected from practical realities.'</i>	'Dan kom je wel verder van de praktijk af te staan, als stuurgroep zijnde.'

<i>'The distance between agriculture and the general public is much greater than 50 years ago due to the reduced number of farmers.'</i>	'De afstand landbouw – burger is veel groter dan 50 jaar geleden, omdat er nog veel minder boeren.'
<i>'From regulations. They focus on specific means.'</i>	'Vanuit de regelgeving. Daar wordt gestuurd op middelvoorschriften.'
<i>'Most rules work the opposite way from what they intend.'</i>	'De meeste regels werken precies andersom als dat ze denken.'
<i>'Well, what we all miss is vision. Because from the central government, it's only reacting and certainly not governing.'</i>	'Nou ja, wat we met z'n allen missen is visie. Want vanuit de Rijksoverheid is het alleen maar reageren en zeker niet regeren.'
<i>'Yes, policy changes much faster, really swinging from left to right. Regarding investments, they are often substantial, and I run a small business. But that's mainly because policy changes rapidly. I don't mind investing, but you can't rely on it anymore because you don't know if what you buy today will still be applicable tomorrow. And in my view, policymakers often have too much distance from practical matters. So, a nice policy, but practically unfeasible or unworkable. But above all, inconsistent. Not long-term. Which is why I lack trust. Because what is true today can be different tomorrow.'</i>	'Ja dat beleid veel sneller verandert, ook echt van links naar rechts. Wat betreft de investeringen zijn vaak groot en ik heb gewoon een klein bedrijf. Maar dat is vooral omdat beleid snel verandert. Ik vind het niet erg om te investeren. Maar je kan er eigenlijk niet meer op bouwen omdat je niet weet of wat je vandaag koopt of dat morgen nog toepasbaar is. Dus in mijn ogen de beleidsmakers vaak te veel afstand met de praktijk hebben. Dus een leuk beleid, maar praktisch niet haalbaar of niet uitvoerbaar. Maar vooral dus niet consistent. Niet lang termijn. Waardoor ik wel vertrouwen mis. Omdat dat gewoon dus vandaag anders kan zijn dan morgen.'
<i>'That horizon keeps getting closer due to the changing policies.'</i>	'Die horizon, die komt met het wisselende beleid steeds korter bij.'
<i>'Only then can that be attributed to climate change, yes, there are parties that attribute all that to that. So every decade has something that it is about.'</i>	'Alleen is dat dan toe te wijzen aan klimaatverandering ja Er zijn partijen die dat daar allemaal aan toewijzen. Zo heeft ieder decennia heeft ook wel iets waar dat het over uitgaat.'
<i>'I initiated it together with R and asked the province. We also conducted an experiment in collaboration with the provinces and with some permission from the water board and the municipality in particular, we were also positive about trying out pressure drainage to actually prevent soil subsidence, in other words peat oxidation.'</i>	'Ik heb het geïnitieerd samen met R bij de provincie gevraagd. Verder hebben we experiment gedaan in samenwerking met de provincies en met een beetje toestemming van vooral waterschap en de gemeente waren ook wel positief om drukdrainage uit te proberen om bodemdaling dus eigenlijk de veenoxidatie tegen te gaan.'
4.2.2 Enablers to Implementation	
<i>'So it is nice that you get help with that. Yes. Because otherwise, you wouldn't have that made.'</i>	'Dus dat is wel fijn dat je daarin geholpen wordt. Ja. Want anders zou je dat niet laten maken.'
<i>'Only then can that be attributed to climate change? Yes, some parties attribute all that to that. So every decade has something that it is about.'</i>	'Alleen is dat dan toe te wijzen aan klimaatverandering ja Er zijn partijen die dat daar allemaal aan toewijzen. Zo heeft ieder decennia heeft ook wel iets waar dat het over uitgaat.'
<i>'Well, that is an example that we also encounter, is the plowing ban in the Natura 2000 area.'</i>	'Nou, dat is een voorbeeld waar we ook tegen aanlopen, is het ploegverbod in Natura2000 gebied'
<i>'The initiative came from us.'</i>	'Het initiatief is eigenlijk van onszelf gekomen.'

<p><i>'I fully support what we are doing now. Yes, and that's where I experience the most satisfaction from my perspective.'</i></p>	<p>Voelt intrinsiek drijfveer voor bedrijfsvoering vanuit klimaat en milieu perspectief. 'Ik sta volledig achter wat we nu aan het doen zijn. Ja en daar haal ik ook de meeste voldoening uit.'</p>
<p><i>'I see this as an investment in the area. So that's how I look at it. Personally, we didn't benefit from it.'</i></p>	<p>Boer zegt over de pilot die ze draaien binnen het gebied gefocust op drukdrainage: 'Ik zie dit als een investering in het gebied. Dus zo kijk ik er ook wel tegen aan. Persoonlijk hadden wij er geen voordeel van.'</p>
<p><i>'Well, if you build a machine that pretends to be good for the environment, for example, those stable floors. Then you do everything you can to get those stable floors legally approved. Once you have been legally approved, you think you are in, but that is the motivation and the motivation is not that it is so good for the company, the environment, the farmers, the end of everything.'</i></p>	<p>'Nou als je een machine bouwt die pretendeert goed te zijn voor het milieu, bijvoorbeeld die stalvloeren, dan doe je er alles aan om die stalvloeren juridisch goedgekeurd te krijgen. Als je dan juridisch goedgekeurd is, dan denk je dat je binnen bent, maar dan is dat de drijfveer, maar niet dat die zo goed is voor het bedrijf, het milieu, de boeren, het einde van alles.'</p>
<p><i>'Nice incidental catch.'</i></p>	<p>Het voldoen aan de klimaateisen voor een bedrijf als Friesland Campina ziet de boer als 'Mooie bijvangst.'</p>

Appendix 2: Interview Guide

Voor dit onderzoek ben ik op zoek naar de relatie tussen het uitvoeren van maatregelen door boeren in het landelijke gebied ten behoeve van het klimaat en hoe participatie hier invloed op heeft. Door klimaatveranderingen verandert er veel in de leefomgeving en hiervoor zijn veranderingen nodig, wat is er nu nodig om dit in werking te stellen? Hiervoor duik ik graag met u in op de vragen over de samenwerking tussen boeren en beleidsmedewerkers en wat er volgens u nodig is en welke rol u voor zichzelf hierin ziet. Daarbij de nadruk willen leggen op belemmeringen en/of drijfveren die u ervaart tijdens het participatieproces.

Deel 1

Inventariseren met wie hebben we te maken?

1. Zou u zichzelf willen voorstellen?
 - Wat voor boerenbedrijf is het?
 - Wat is de grootte van het bedrijf? (hectare, diversiteit, seizoensgebonden?)
 - Wat is uw achtergrond of zijn neven bezigheden?
 - Eigendom/werknemers, werkt u alleen of heeft u nog mensen in dienst?

Deel 2

Inventariseren wat de huidige situatie in het gebied/bedrijf is omtrent klimaat adaptieve maatregelen voor overstromingsgebieden.

1. A. Doet u momenteel al iets met klimaatadaptatie?
B. Vanwege klimaatverandering hebben we in het landelijke gebied te maken met nieuwe opgaves, zijn er opgaves waar u mee te maken heeft hier? Denk hierbij aan droogte, natter en warmer.
2. Zijn er gesprekken over de implementatie van klimaat adaptieve maatregelen tegen overstromingsgevaar? Zo niet, waarom niet? Waar zijn hobbels?

Deel 3

Inventariseren wat de opinie tegenover de participatie over het huidige klimaatbeleid binnen het gebied is. Ik wil graag onderzoeken waar die 'knelpunten' vandaan komen. Ik heb een aantal 'thema's' waar naar mijn idee de knelpunten naar voren komen.

Plaatselijke aanpak

- Waar/op welke schaal vindt u dat de klimaatcrisis aangepakt moet worden?
- Kunt u als agrariër deze opgaven en het doen van klimaatadaptieve maatregelen alleen aan?

Communicatie

- Wie heeft u nodig?
- Met welke partijen werkt u al veel samen of hebt u contact? En waar gaat dit over?
- Mist u nog iemand aan tafel die volgens u een belangrijke rol speelt?

Barrières en drijfveren

Barrières PARTICIPATION / IMPLEMENTATION

Financiële steun en marktkrachten

1. Ervaart u barrières door een te hoge waarde van land waardoor bepaalde handelingen hier niet meer op verricht kunnen worden?
2. Ervaart u barrières doordat participeren als tijdsintensief wordt gezien?
3. Ervaart u barrières door gebrek aan financiële ondersteuning en waar zit dan het gebrek hiervan in/waar merkt of mist u het?
4. *Ervaart u barrières door gebrek aan geld in een grotere zin? Hierin mist u geen financiële steun expliciet maar waar komt dan het tekort aan geld vandaan?*
5. *Ervaart u barrières door te hoge kosten op plekken?*

Informatieverspreiding

1. Ervaart u barrières door beperking van open en eerlijke communicatie?
2. Ervaart u barrières door informatie die volgens u niet objectief is?
3. Ervaart u dat u niet altijd op de hoogte bent van activiteiten?
4. *Ervaart u dat het nalaten om communicatie te leveren die boeren nodig hebben en waarderen?*
5. *Ervaart u barrières door gebrek aan communicatie tussen belanghebbende*
6. *Ervaart u barrières door verwarrende berichtgeving?*

Institutionele instellingsvoorschriften

1. Ervaart u barrières door gebrek aan leiderschap?
2. Ervaart u barrières door het willen nastreven van één benadering/aanpak?
3. Ervaart u barrières door gebrek aan programmaevaluatie?
4. *Ervaart u barrières door invloed van de industrie?*
5. *Ervaart u barrières door bottom-up sturing?*

Landbouwpraktijken

1. Ervaart u barrières door lage waargenomen rendement op investeringen?
2. Ervaart u barrières door het aantal personen op de boerderij? 1 mans bedrijf?
3. Ervaart u barrières door gebrek aan tijd?
4. Ervaart u barrières door Afhankelijkheid van het weer?
5. *Ervaart u barrières door technische aspecten? Bent u klaar voor de te nemen maatregelen?*

Geloofsovertuigingen en individuele capaciteiten

1. Ervaart u barrières door negatieve aandacht aan boeren?
2. Ervaart u barrières voor het delen van kennis en informatie aan anderen?
3. Ervaart u barrières door netwerkvaardigheden?
4. *Ervaart u barrières door eigen voorkeuren? Hoe wilt u zelf boeren en komt dit overeen met de boeren praktijken die van u worden gevraagd?*
5. *Ervaart u barrières door gebrek aan vertrouwen? In de toekomst, het beleid, andere boeren?*
6. *Ervaart u barrières door weerstand vanuit anderen of uzelf?*

Drijfveren

Financiële steun en marktkrachten

1. Ervaart u drijfveer door overheidssteun, in welke vorm is hier steun gegeven?
2. Ervaart u drijfveer door marktkrachten, dat er via de markt ondersteuning is in de vorm van framing, financiën, doelen?
3. Ervaart u drijfveer door bijkomende activiteiten binnen het bedrijf?
4. *Ervaart u drijfveer door branding en imago, zo ja in welke vorm?*

Informatieverspreiding

1. Ervaart u drijfveer door een kleine afstand tussen sector en beleidsmakers?
2. Ervaart u drijfveer door voorkomen van isolatie?
3. Ervaart u drijfveer door informatie van buiten de sector?
4. *Ervaart u drijfveer door duidelijke communicatie?*
5. *Ervaart u drijfveer door verbinding tussen wetenschap en praktijk?*
6. *Ervaart u drijfveer door transparante communicatie?*

Institutionele instellingsvoorschriften

1. Ervaart u drijfveer door onderhandelingskracht?
2. Ervaart u drijfveer door verantwoordelijkheid te voelen voor belangrijke zaken?
3. Ervaart u drijfveer door transparante communicatie?
4. *Ervaart u drijfveer door regelgeving en beleid?*
5. *Ervaart u drijfveer door institutionele structuren, dus hoe dit nu in het beleid werkt?*
6. *Ervaart u drijfveer door samenwerkingen?*

Landbouwpraktijken

1. Ervaart u drijfveer door meerdere mensen op het bedrijf werkzaam zijn?
2. Ervaart u drijfveer door een rustige periode?
3. Ervaart u drijfveer door de beschikbaarheid van arbeidskrachten?
4. *Ervaart u drijfveer door technische aspecten?*

Geloofsovertuigingen en individuele capaciteiten

1. Ervaart u drijfveer door uitwisseling van kennis?
2. Ervaart u drijfveer door beeld van de sector?
3. Ervaart u drijfveer door netwerkvaardigheden?
4. *Ervaart u drijfveer door kennis?*
5. *Ervaart u drijfveer door percepties?*
6. *Ervaart u drijfveer door (intrinsieke) motivatie?*

Rol van beleidsmedewerkers vs. rol van de boeren

- Welke rol ziet u zichzelf graag invullen?
- Krijgt u genoeg ruimte in het participatieproces om deze rol in te vullen? *Meepraten, aanhoren, boer als expert?*
- Nemen beleidsmedewerkers de juiste rol op? *Welke rol ziet u graag opgenomen worden door beleidsmedewerkers? (1. loslaten, 2. Faciliteren, 3. Stimuleren, 4. Opbouwen van een netwerk, 5. Reguleren)*

Deel 4

Afsluiten

1. Welke kans ziet u nog op klimaat, die nog niet is opgepakt?
2. Hoe ziet u de toekomst? Door veranderend klimaat worden de weersextremen alleen maar 'erger'. Hoe ziet uw bedrijf er over 20 jaar uit?

Mag ik nog een keer bellen mocht ik toch iets vergeten zijn?

PARTICIPATIE

THEMA	BARRIERE	DRIJFVEER
Financiële steun en marktkrachten	<ul style="list-style-type: none"> •Hoge waarde van land •Tijdsintensief •Gebrek aan financiële ondersteuning 	<ul style="list-style-type: none"> •Overheidssteun •Marktkrachten •Bijkomende activiteit
Informatieverspreiding	<ul style="list-style-type: none"> •Beperking van open en eerlijke communicatie •Informatie is niet objectief •Niet op de hoogte van activiteiten 	<ul style="list-style-type: none"> •Afstand tussen sector en beleidsmakers verkleinen •Voorkomen van isolatie •Informatie van buiten de sector
Institutionele instellingsvoorschriften	<ul style="list-style-type: none"> •Gebrek aan leiderschap •Integrale/één benadering •Gebrek aan programma-evaluatie 	<ul style="list-style-type: none"> •Onderhandelingskracht •Verantwoordelijkheid/eigendom •Transparante communicatie
Landbouwpraktijken	<ul style="list-style-type: none"> •Lage waargenomen rendement op investering •Eén persoon op de boerderij •Gebrek aan tijd •Afhankelijkheid van het weer 	<ul style="list-style-type: none"> •Verschillende mensen op dezelfde boerderij •Rustige periode
Geloofsovertuigingen en individuele capaciteiten	<ul style="list-style-type: none"> •Negatieve aandacht •Niet bereid om informatie te delen •Gebrek aan netwerkvaardigheden 	<ul style="list-style-type: none"> •Uitwisseling van kennis •Beeld van de sector •Netwerkvaardigheden

IMPLEMENTATIE

THEMA	BARRIERE	DRIJFVEER
Financiële steun en marktkrachten	<ul style="list-style-type: none"> -Gebrek aan overheidsfinanciering -Hoge initiële kosten -Gebrek aan geld 	<ul style="list-style-type: none"> -Marktkrachten -Financiële ondersteuning -Branding en imago
Informatieverspreiding	<ul style="list-style-type: none"> -Nalaten om communicatie te leveren die boeren nodig hebben en waarderen -Lage / geen communicatie tussen belanghebbenden -Verwarrende berichtgeving 	<ul style="list-style-type: none"> -Duidelijke communicatie -Verbinding tussen wetenschap en praktijk -Transparante communicatie
Institutionele instellingsvoorschriften	<ul style="list-style-type: none"> -Invloed van de industrie -Bottom-up sturing -Integrale / één benadering 	<ul style="list-style-type: none"> -Regelgeving en beleid -Institutionele structuur -Samenwerking
Landbouwpraktijken	<ul style="list-style-type: none"> -Bedrijfsbeheer -Tijd -Technische aspecten 	<ul style="list-style-type: none"> -Bedrijfsbeheer -Beschikbaarheid van arbeidskrachten -Technische aspecten
Geloofsovertuigingen en individuele capaciteiten	<ul style="list-style-type: none"> -Voorkeur -Vertrouwen -Weerstand 	<ul style="list-style-type: none"> -Kennis -Percepties -Motivatie

Appendix 3: Codebook

Name	Count	Grounded	Density	Groups	Created by	Modified by	Created	Modified
Belemmeringen participatie	5	1	0	[Samenwerking: Verbinding]	Bo Smit	Bo Smit	13-05-2024 15:58	13-05-2024 15:58
Drijfveer: Indirect	11	1	0	[QUOTES]	Bo Smit	Bo Smit	14-05-2024 11:53	14-05-2024 11:53
Drijfveer: Intrinsiek klimaat	19	1	0	[QUOTES]	Bo Smit	Bo Smit	13-05-2024 13:48	13-05-2024 13:48
Drijfveren participatie	5	1	0	[Wantrouwen: Versplintering]	Bo Smit	Bo Smit	13-05-2024 16:02	13-05-2024 16:02
Financiën	23	1	0	[Wantrouwen: Toekomst]	Bo Smit	Bo Smit	13-05-2024 15:53	13-05-2024 15:53
QUOTES	14	13	0		Bo Smit	Bo Smit	20-06-2024 14:39	20-06-2024 14:39
Samenwerking: Communicatie	47	7	0		Bo Smit	Bo Smit	20-06-2024 09:56	20-06-2024 09:56
Samenwerking: Doel	17	28	0		Bo Smit	Bo Smit	20-05-2024 12:58	20-05-2024 12:58
Samenwerking: Rolverdeling	40	37	0		Bo Smit	Bo Smit	21-05-2024 15:24	21-05-2024 15:24
Samenwerking: Slechte ervaring	0	25	0		Bo Smit	Bo Smit	21-05-2024 07:42	21-05-2024 07:42
Samenwerking: Verbinding	74	20	0		Bo Smit	Bo Smit	21-05-2024 09:54	21-05-2024 09:54
Transitie	17	14	0		Bo Smit	Bo Smit	20-06-2024 12:00	20-06-2024 12:00
Wantrouwen: Industrie	16	40	0		Bo Smit	Bo Smit	19-05-2024 13:00	19-05-2024 13:00
Wantrouwen: Overheidsorgaan	27	16	0		Bo Smit	Bo Smit	18-05-2024 16:09	18-05-2024 16:09
Wantrouwen: Slechte ervaring	8	1	0	[Samenwerking: Verbinding]	Bo Smit	Bo Smit	15-05-2024 11:55	15-05-2024 11:55
Wantrouwen: Toekomst	29	1	0	[Wantrouwen: Toekomst]	Bo Smit	Bo Smit	13-05-2024 09:49	13-05-2024 09:49
Wantrouwen: Versplintering	24							

Code Distribution by Document

Document	Count
D 1: Transcriptie interview Frans van K...	13
D 2: Transcriptie interview Arian Ma...	28
D 3: Transcriptie interview Chris Poe...	37
D 4: Transcriptie interview Frank 10...	20
D 5: Transcriptie interview Herbert T...	9
D 6: Transcriptie interview Jan dent...	14
D 7: Transcriptie interview Joris Gree...	40
D 8: Transcriptie interview Jos B. 4...	35
D 9: Transcriptie interview Kees Bae...	27
D 10: Transcriptie interview Maarten...	32
D 11: Transcriptie interview Paul 9-4...	7
D 12: Transcriptie interview Peter He...	9
D 13: Transcriptie interview Reine...	42
D 14: Transcriptie interview Simone...	30
D 15: Transcriptie interview Toon Bo...	30

