

Spatial Justice and the Nitrogen Crisis:
The impact of reduction measures on farmers in Noord-Brabant



Elle Bijnnen (s1104866)

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Author: Elle Bijnnen
Contact: e.bijnnen@gmail.com

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Supervisor: Adam Calo
Second Reader: Harry Petit
Student number: s1104866

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Summary

The nitrogen crisis is a major problem that is currently affecting the Netherlands. Excessive nitrogen emissions are emitted by all sectors, with the largest emissions occurring in the agricultural sector. To reduce these emissions, the government has introduced several reduction measures, including measures around innovation and reducing livestock (buy-outs). But not everyone agrees with these measures, as evidenced by the many protests that have taken place in recent years.

This study aims to explore how the nitrogen-reduction measures influence live-stock farmers in the province of Noord-Brabant. Because the nitrogen measures are often place-based strategies, the theory of Spatial Justice has also been utilized. Spatial justice is made up from several other types of justice, including procedural and recognition justice. To make it easier to ask questions about these justices, they were translated into the concepts of institutions and political attitudes. For this research the following research question has been created: "How do institutions and political attitudes influence the experience of the nitrogen crisis for livestock farmers in Noord-Brabant?".

To answer this question, qualitative research has been done. The research consisted of five interviews, four of which with different small-scale livestock farmers and one with a provincial employee. These interviews were analysed by using a word-coding system to see if they aligned with the literature research that was done beforehand. Results showed that the farmers often feel unheard and excluded by the policy making process. This feeling is often caused by the ever-changing laws and regulations regarding nitrogen. Farmers also feel like they are being targeted more than other sectors, and that the province of Noord-Brabant has a stricter nitrogen-policy than other provinces.

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1. Introduction

1.1 Introduction

The Netherlands is coping with a nitrogen crisis. Even though the country is relatively small, the Netherlands is still one of the largest emitters of nitrogen in the European Union (RIVM, n.d.). This is partly due to the large number of livestock that emit nitrogen through their manure (NOS nieuws, 2022). These high amounts of nitrogen are harmful to the nature inside and outside of the country. Excessive nitrogen emissions can lead to growth reduction, growth stimulation, and even death in plants (Van Der Eerden, 1982). In other words, excessive amounts of nitrogen lead to a decrease in biodiversity in nature.

As a member of the European Union, the Netherlands is committed to the European legislation, which includes the protection and conservation of nature reserves in the country (RIVM, n.d.). This means that the Netherlands has to reduce the high amount of nitrogen emissions it is currently emitting in order to save the biodiversity of the Dutch nature. To do this, the PAS (*in Dutch: 'Programma Aanpak Stikstof'; in English: 'Nitrogen Action Programme'*) was implemented in 2015. The PAS functioned as a nitrogen regulation system that made it possible for businesses to emit nitrogen, on the condition that these emissions were later compensated for (Erisman, 2021). Unfortunately, this reduction system worked better on paper than it did in reality (NOS nieuws, 2022). For this reason, the PAS was declared invalid by Council of State in 2019 (Raad van State, 2019). As a result, no new permits were allowed to be issued for nitrogen emitting projects, like building new stables or new houses, thus starting the nitrogen crisis (BIJ12, 2024).

After the PAS was declared invalid in 2019, the Dutch government introduced new nitrogen legislation with new reduction measures. These new measures are often times place-based strategies, and even though these are more effective when it comes to solving the nitrogen problem (Pracht, 2021), they also come with the problem of spatial justice. Spatial justice is a critical theory that highlights spatial and geographical injustices (Soja, 2008).

These spatial injustices occur for the reason that the protected nature reserves are managed by the provinces in which these nature reserves are located. For example, the province of Noord-Brabant is responsible for 21 nature reserves, while the province of Limburg is responsible for 24 nature reserves (Ministerie van Landbouw, Visserij, Voedselzekerheid en Natuur, n.d.). Each of these provinces may choose to apply their own approach to conserving this nature. Therefore they also decide which measures to take for the nitrogen reduction within their own province (Kuindersma et al., 2021). This means that one province may focus more on certain measures within the agriculture sector, such as reducing livestock, while other provinces may focus more on measures within the mobility sector. These differences in approach can be seen as unjust and can have an impact on the people living in these provinces.

A group of people that have been heavily impacted by the nitrogen measures are the farmers. They have generally followed all the laws and regulations, often investing heavily in sustainability. Yet at this point in time they are being told their sector needs to shrink because there is too much livestock that is emitting nitrogen (NOS nieuws, 2022). Within this group, small scale farmers were affected the most (Hance, 2024). This research will study the impact of the nitrogen crisis on small scale farmers, with a specific focus on livestock farmers in the province of Noord-Brabant.

1.2 Social Relevance

The nitrogen crisis, and the various injustices that come along with it, are causing polarization in the Netherlands. A study by market research agency Ipsos (2022) showed that politicians, party donors and activists are the biggest contributors to the nitrogen debate. The outspoken opinions of these people have a major influence on the 'opinion formation' of the average citizen. With the introduction of the new nitrogen plans, presented on the 10th of June in 2022, the importance of nitrogen policy among citizens has increased considerably. Where previously only 9% of all voters considered nitrogen an important political issue, this has now risen to 26% (1 in 4) of the Dutch citizens (Van Heck, 2022).

However with interest in the topic increasing, tensions between different opinion groups are also rising, creating more polarisation. This polarisation as a result of the nitrogen crisis can best be described as 'vertical polarisation'. Vertical polarisation means there is a gap between the opinions of the government and the opinions of the citizens (Nederlands Jeugdinstituut, n.d.). This vertical polarization causes citizens to have less confidence in the Dutch government. "Six out of ten Dutch people are concerned about nitrogen emissions and the impact on the environment. Yet many Dutch people believe that too much responsibility for reducing these emissions is placed on farmers" (Ipsos I&O, 2022). This shows that the nitrogen crisis not only affects farmers, but also affects society as a whole through politics, economics and climate.

That farmers are not happy with the existing nitrogen policy is also evident from the last parliamentary elections of 2023. During these elections, the BBB, (in Dutch: de Boeren Burger Beweging, in English: the Farmers Citizen Movement) was one of the largest political parties (RTL Nieuws, 2023). The BBB is a political party that stands up for farmers and has two important propositions: no forced buyouts of farms and the removal of the 2030 deadline from the nitrogen policy (Nieuwenhuis, 2023). "The enormous profit of the BBB [...] can be seen as a vote of protest against, among other things, the nitrogen and climate policy" (Klaassen & Van Soest, 2023).

This voice of protest against the nitrogen policy was not only heard during the elections. Ever since the ruling of the Raad van State in 2019, multiple farmers protests have taken place over the years in the Netherlands, including tractor blockades of various highways and purposely turning the Dutch flag upside down (NOS, 2022b). The protests were fully covered in the Dutch news, but also in the foreign news. The Guardian even spoke of a 'Nitrogen war' (Tullis, 2024). This research also highlighted the need for a better understanding of the causes for these different farmers protests.

And this better understanding is still needed. Because even though the BBB was elected as the representing political party for the farmers, they failed to make actual changes to the existing nitrogen policies (AD, 2025). So, nothing has actually changed within the nitrogen crisis and with the positions of farmers within these policies.

The aim of this research is to give farmers a voice and to find out what the problems are for them within the nitrogen crisis in the province of Noord-Brabant. This provides clarity, which can contribute to a reduction of polarisation and to a fairer formulation of policy. By doing so, this can in turn help to create a policy that works for both the environment and the people.

1.3 Scientific relevance

The Nitrogen crisis has been a hot topic in recent years and has been researched many times before. One of these researches is the one from Van der Ploeg (2020), in which it becomes clear that Dutch farmers, especially small-scale farmers that do not make use of a lot of intensive technology, are often underrepresented in public discourse and policy making.

Another research is a study from Cui et al. (2025). This research illustrates how the Nitrogen crisis is not only a problem in the Netherlands, but also for other countries across the globe. The research explained how nitrogen emissions and global warming have devastating effects for countries all over the world, because it causes major harvest loss. "In addition to food price fluctuations and social instability, decreased food production and supply could have particularly severe consequences in developing economies in Africa, Latin America, and Asia, where harvest loss could lead to increased famine and malnutrition" (Cui et al., 2025). All these problems emphasize how important it is for the agricultural sector and for policymakers to take action to tackle these challenges.

But even though the nitrogen crisis has been researched in many instances, almost none of this research views the crisis through a spatial justice lens. But especially now that the term justice has turned into a powerful slogan and mobilizing force that is used by new social movements and politics (Soja, 2008), this lens becomes more important than ever. And the spatial aspect of spatial justice cannot be forgotten in this. "Combining the terms spatial and justice opens up a range of new possibilities for social and political action, as well as for social theorization and empirical analysis, that would not be as clear if the two terms were not used together" (soja, 2008, p4).

This research intends to study the challenges small-scale farmers face because of the nitrogen emissions through the lens of Spatial justice. This can help people understand these challenges, so they can be addressed more effectively in the future. On top of that this research adds to the existing literature on the nitrogen crisis and spatial justice.

1.4 Research question

The objective of this research is to examine the influence the nitrogen reduction measures have on livestock farmers in Noord-Brabant. This will be done through a lens of 'spatial justice', which focuses on social, political and economic aspects. The research question will be as follows: "How do institutions and political attitudes influence the experience of the nitrogen crisis for livestock farmers in Noord-Brabant?"

In order to uncover the answer to the research question, a couple subquestions have been formulated:

1. What nitrogen policy is implemented in the province of North Brabant?
2. How does this policy differ from the nitrogen policies in other provinces?
3. What are the political attitudes towards farmers within the nitrogen crisis?

1.5 Reading Guide

The research is divided into multiple chapters. After this introductory chapter, a deeper dive into the history of the nitrogen crisis will be taken in Chapter 2, along with a more in-depth explanation of the theory of spatial justice. This chapter also contains a conceptual model that gives a coherent picture of the structure of this thesis. Chapter 3 will break down the different research

methods that were used for the execution of this research. The next chapter, Chapter 4, will reveal the results of the interviews and desk research. The conclusions of these results can be found in chapter 5, which is followed by an extensive discussion in chapter 6.

2. Theoretical Framework

2.1 A brief history of the Nitrogen Crisis

2.1.1 The problem with nitrogen

Before the history of the nitrogen crisis can be explained, a little more explanation about nitrogen is in order. The air on earth consists for 78 percent of nitrogen (N₂) (NOS op 3, n.d.). Nitrogen is a vital sort of nutrient that all living organisms need in order to survive. It is an important element for our proteins and our DNA. But primary organisms such as plants cannot directly absorb the nitrogen in their systems. To do this, the nitrogen must bind to other substances, creating a nitrogen compound (Bernhard, 2010).

The problem with the nitrogen emissions lies in two of these nitrogen compounds: nitrogen oxides (NO_x) and ammonia (NH₃). Nitrogen oxides are mainly emitted by industry and traffic, while ammonia is mainly emitted through manure and construction (ZLTO, n.d). Nitrogen Oxides can be mostly found in the air, while ammonia is mostly found in the soil and water (De Vries, 2021, p1).

The ammonia side of the nitrogen crisis is a particular problem for the agricultural sector. Ammonia is mainly emitted through animal manure. As mentioned in the introduction (Chapter 1), too much ammonia exposure can lead to certain health problems for plants and a decrease in biodiversity. These ammonia exposure problems often occur when manure is handled incorrectly.

2.1.2 Natura 2000

The farmers protests are not a recent phenomenon in the Netherlands. The first farmers protest dates all the way back to 1971, when small scale farmers protested the closing of their farms for the purpose of scaling up the agricultural sector (Veerman & Gravesteijn, 2025, p15). For the sake of this research, the history will be explained from the introduction of natura 2000 areas, but it is important to note that tensions between farmer and government have their origin a couple of years before that.

Natura 2000 is a network of preserved nature reserves that spread all across Europe. The Netherlands counts 162 Natura 2000 areas in total, spread out all over the country (Ministerie van Infrastructuur en Waterstaat, 2024). The province of Noord-Brabant counts 21 Natura 2000 areas (Provincie Noord-Brabant, 2024). The goal of these areas is to protect various species of animals and plants that are native to this area, as well as the natural habitats these species live in, in order to ensure that the biodiversity of the nature reserve meets the European standards (Ministerie van Landbouw, Visserij, Voedselzekerheid en Natuur, 2021).

The Natura 2000 areas were brought to life after the European Union introduced legislation that was aimed at protecting bird species and their natural habitats. Two important directives of this legislations are the 'Vogelrichtlijn' (*in English: Birds Directive*), established in 1979, and the 'Habitatrichtlijn' (*In English: Habitats Directive*), established in 1992 (Ministerie van Landbouw, Visserij, Voedselzekerheid en Natuur, 2021).

Based on these directives, strict requirements for the protection of these Natura 2000 areas were put in place, including a substantial reduction of the nitrogen deposition in these areas. The most influential requirement being the requirement of article 6 of the Habitatrichtlijn, which states that plans and projects with potential negative effects on the protection of the area must be assessed

for their “harmfulness”. If the plan is harmful to the protection of the area, the plan may not go ahead unless there really is no alternative possible or if there is a form of nature compensation in return (Vogelbescherming Nederland, n.d.).

2.1.3 *Why farmers are angry*

Farmer protests within the nitrogen crisis have multiple motives. The most often mentioned motive is the high amounts of needed nitrogen reduction. This is because the nitrogen reduction goal of 2030 is not the first time that farmers in the Netherlands had to significantly reduce their nitrogen emissions. In 1992, the first limits for nitrogen emissions were implemented by the European union. Following this limit, the Netherlands, who was already one of the highest emitters of nitrogen in the European Union at that time, halved their nitrogen emissions (BIJ12, 2024).

After this period of significant reduction, the decrease in nitrogen emissions stagnated (BIJ12, 2024). On top of that, these original nitrogen reductions were not enough to battle the excess nitrogen in the Natura 2000 areas, as there was still more nitrogen deposition in the nature reserves than the allowed limit. This was the conclusion of a 2004 report by the National Institute of Public Health and the Environment (RIVM), which, following objections from environmentalists, investigated the functioning of the reduction approach put in place by the government at the time (NOS op 3, n.d.).

To solve this, a change of approach was needed. This change came in 2008, at which point in time the Dutch government started with the development of a new nitrogen reduction system, the PAS (BIJ12, 2024). This development took a couple of years, and the PAS was not officially implemented until 2015 (NOS op 3, n.d.). As explained in the Introduction (Chapter 1.1), the introduction of the PAS made it possible to get a permit for new projects, because the system accounted for the effects of future reduction measures.

But after doubts from the Council of State, an investigation on the real-life effects of the PAS showed that the system did not comply with the European rules with reference to preserving nature. Therefore, the Council of State declared the PAS invalid and all the permits that were applied for on basis of the PAS were immediately rejected (NOS op 3, n.d.). This meant that a new approach had to be found, because the nitrogen emissions still have to be reduced by 70 percent in many parts of the Netherlands (NOS, 2022a). Following the ruling of the Raad van State over 18.000 projects were now hold off, including building new housing, industrial facilities and new or expanding agricultural farms (Erisman, 2021).

To find this new approach, the chairman of the Advisory Committee on Nitrogen Problems writes a report with possible solutions to this now very real nitrogen crisis. In this report, a few concrete solutions are mentioned, including the buyouts of polluting and outdated farms (NOS op 3, n.d.). This solution did not sit right with the farmers. Suddenly farmers were labelled as these big environmental polluters, even though they always work along with nature to do their job (ZLTO, n.d.). The farmers also feel like the blame is mainly being put on the agricultural sector, while they are not getting a lot of help with innovation (NOS op 3, n.d.).

And according to research by Wageningen University (n.d.), this innovation is one of the possible solutions to the nitrogen crisis. The research, that was commissioned by collaborating provinces

(IPO), shows that 41-50% of ammonia emissions can be reduced through technical innovations. However, this is only feasible in the event that all available innovations are applied and if all farmers participate. Another downside of the innovations is that it is very expensive, and farmers are dissatisfied with the compensation they get from the government for this, because farmers often receive minimal or no subsidies for this. This creates risks and therefore hesitancy and uncertainty by farmers (Ros, 2025). So, to show their disdain, farmers made their voices be heard at a number of major protests in October 2019 (Veerman & Gravesteijn, 2025, p12).

Another reason farmers are angry is the economic aspect. Agriculture is an important part of the Dutch economy, with the Netherlands ranked second highest in the world for its agricultural exports (Erisman, 2021). In 2024, the agricultural export had a total value of 128,9 billion euros, which is an 4,8% increase in value compared to the 124 billion euros in 2023 (CBS, 2025). The agricultural export value accounts for about 20% of the Netherlands' total export value (Erisman, 2021).

But these high export numbers come with a price, nitrogen emissions. Yet blaming all these emissions on agriculture feels unfair to the farmers. The majority of the agriculture is done for the purpose of food production. This means farmers only produce what consumers are asking for (ZLTO, n.d.). As long as consumers, like Dutch citizens, keep asking for certain agricultural products, the sector will deliver them, meaning that a change in productions from the agricultural sector can only happen in the event that the consumer changes their demand for the products. So, in other words, farmers feel like consumers do not take enough responsibility within the problem of nitrogen emissions, because consumers are indirectly responsible for these emissions by demanding the agricultural products.

2.2 Spatial Justice

The theory of spatial justice has been interpreted and applied in many different ways. Some interpretations view spatial justice as an extension of social justice. These interpretations focus on the geographical differences in the distribution patterns of resources, including the structural processes that cause them (Woods, 2023).

One of these interpretations is the one from Edward Soja. According to him, spatial (in)justice is both 'the outcome and the process' of geographies and distributional patterns (Soja, 2008, p3). What he means by this is that certain geographical or distributional patterns and processes play an important role in spatial justice, and that these patterns and processes can either create or solve injustices.

Other interpretations of spatial justice focus on the injustices of individual abilities, the rights to spaces and places and the availability of access to power (Woods, 2023). These interpretations have often been related to Henri Lefebvre's 'Right to the city' (Lefebvre, 1968), in which he contemplates the way space is created and who has access or 'rights' to this space. "It [Right to the city] would affirm, on the one hand, the right of users to make known their ideas on the space and time of their activities in the urban area" (Lefebvre, 1995, p34). With this he means that the people who are living in an area (in Lefebvre's case in a city, in the case of this research in a country/province) have the right to have a say in what should happen in this area and how these things will be made possible.

Spatial justice also has an important 'spatial dimension'. This spatial dimension refers to the burdens and benefits are fairly distributed in human spaces and communities (Rocco, 2023).

It is important to note that spatial justice is not a completely isolated concept, and that it is also often made up out of other types of justices (Woods, 2023). These types of justices include environmental justice, distributive justice, procedural justice and recognition justice (Robbins et al., 2022; Rocco, 2023). Seeing as not all these types of justice are relevant to the topic of the nitrogen crisis, only procedural justice and recognition justice will be explained further.

2.1.1 Procedural justice

Procedural justice refers to "the justice in the procedures and governance of the built environment" (Rocco, 20203). These procedures and governance often refer to the institutions that are implemented by the government. According to Douglas North (1991), institutions are "the humanly devised constraints that structure political, economic and social interaction". Institutions can refer to informal constraints, like traditions, codes of conducts and taboos, and to formal rules, like laws, constitutions and property rights (North, 1991). In other words, procedural justice concerns the legally implemented regulations, rights and rules made by the government, but also the societal norms and values people find important.

The legal implementations are what make procedural justice an important factor of this research. Within the nitrogen crisis, the laws and regulations keep changing. And while the laws and regulations themselves are not great for farmers, this process of ever-changing institutions makes it even worse. According to Meyerson et al. (2020), people who are wrongly denied their legal rights face injustice and 'moral harm'. Procedural justice is meant to have processes that should protect people from these forms of injustices.

"One of the significant findings is that processes matter to people. In fact, the experience of having been treated fairly can be as important as outcome favourability (whether the outcome leads to personal gain) and outcome fairness (whether the outcome is deserved)" (Meyerson et al., 2020).

Within these processes, the way authorities behave and approach procedural justice is very important. "Understanding of procedural justice is shaped by relational factors, such as the attitudes expressed by authorities in interacting with them" (Meyerson et al., 2020). This means that the position of politicians is extremely important when it comes to procedural justice and spatial justice in general. This argument is also made clear in Soja's research about spatial justice (2008), in which he states that the 'political organization of space', or in other words the political attitudes towards a problem, are an important source of spatial (in)justice.

2.1.2 Recognition justice

Recognition justice or 'recognitional justice' is a pretty abstract concept. Because of this, there are multiple definitions and interpretations of the term. For this research, the definition from Rocco (2023) is used, which describes recognition justice as "a concept that focuses on the importance of acknowledgment, validation, and respect for individual and collective identities, experiences, and cultural expressions" (Rocco, 2023). In other words, within this research recognition justice highlights the opinions, experiences and treatment of farmers.

Recognition is important to gain equality between different perspectives and ways of understanding the world, something that is not guaranteed when looking at distribution and processes only. The critical lens of recognition justice can create a deeper understanding to the various ways in which the people who are affected by an intervention think about, view, evaluated and talk about an issue (Massarella et al., 2020).

People turn to concepts like recognition after 'political disillusionment'. This means that people will ask for recognition when politics fail to make people feel included or respected (Honneth, 2004). This makes recognitional justice relevant and important for this research, because this call for recognition can be related to the farmers protests that have been happening in the past years.

According to Rocco (2023), there are five key aspects of recognition justice: Identity recognition, Cultural recognition, historical recognition, representation and respect and dignity. Identity recognition is not applicable to this research. This is because identity recognition concerns individuals or groups who have repeatedly been oppressed or marginalized based on their race, gender, religion or social characteristics. This is not the case for farmers in the Netherlands, so therefore this research will not include identity recognition. The other four aspects will be included and are explained below.

The first aspect of recognition justice is the aspect of 'cultural recognition'. Cultural recognition is about knowing and keeping the importance of varying cultural traditions, practices and expressions (Rocco, 2023). Research by Thomas et al. (2019) reveals that farmers are great sources of local knowledge. This knowledge and the practices that are formed through it are often context and place related. Nitrogen reduction measures – specifically buying out farms – can erase this knowledge and these practices and can therefore also erase a part of specific farmer culture.

The second aspect of recognition justice is 'historical recognition'. Historical recognition refers to the acknowledgement of past injustices and 'historical wrongs' and to focusing on the impacts these past injustices still have in the present (Rocco, 2023). An example of this in the case of the farmers in the Netherlands is the rejection of a proposal from farmers by the Dutch government in 2021. Dutch farmers, along with several other involved parties (for example: Natuurmonumenten, Natuur & Milieu, LTO Nederland, Bouwend Nederland, etc) proposed a way to reduce nitrogen emissions by 40% by 2030 (Sonnema & LTO, 2021). The proposal was disregarded by the Dutch government. This meant farmers and other involved parties were unable to add to/discuss the policies and regulations concerning the Nitrogen reduction measures that were being composed and implemented around that time, which could be seen as a form of procedural justice.

The third aspect of recognition justice is the aspect of 'Representation'. According to Rocco (2023), representation concerns making sure that the voice of marginalized groups is heard, both in cultural, political and social institutions. Even though farmers are not a marginalized group in the Dutch society, representation still matters. This is part of the reason why the BBB was so popular in the last elections, which was also made clear by a statement made by Caroline van der Plas, party leader of the BBB: "Usually people stay home when they lost all trust in politics, but today they showed that they no longer want to stay home. People want to make their voices heard" (RTL nieuws, 2023).

The fourth and last aspect of recognition justice is 'Respect and dignity'. Respect and dignity mean nothing more than treating individuals or groups with respect and dignity, regardless of their

background or their social position (Rocco, 2023). This aspect kind of ties in with the aspect of representation. People want to be heard, and they want to be treated with kindness and respect.

2.2 Focus of this research and conceptual model

The concepts that are mentioned in chapter 2.1 are only a small part of all the different concepts that make up spatial justice, and for each of these concepts a separate study could be written.

Within this research, the focus was put on the concepts of procedural justice and recognition justice. To make it easier to translate these concepts into askable interview questions, these two topics have been narrowed down to their key concepts. Procedural justice has been narrowed down to 'institutions', while recognition justice has been narrowed down to 'political attitudes' for the remainder of this research.

In order to get a clear overview of what this research is about, a conceptual model has been made. This model can be seen in the figure below.

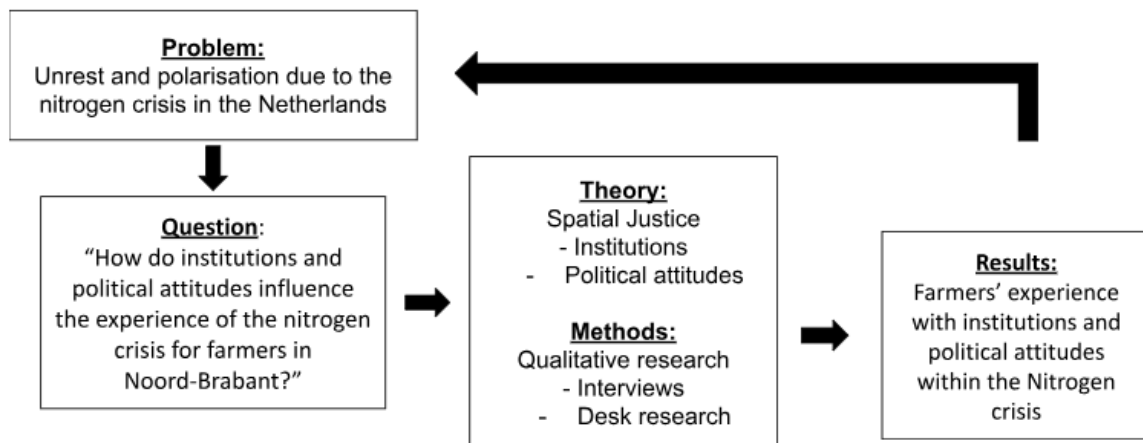


Figure 1: Conceptual model

3. Methodology

3.1 Research area

Due to time constraints, it was not feasible to interview farmers from all over the Netherlands. Therefore, the choice was made to look at where the nitrogen emissions are the highest. According to this map of the RIVM (2023), the most nitrogen deposition (dark red areas) can be found in the South of the Netherlands, within the provinces of Zeeland, Noord-Brabant, Gelderland and Limburg.

From these four provinces, the province of Noord-Brabant was chosen as the research area (see red circle in figure 2). This was done because with a total of 12 340 agricultural companies, Noord-Brabant contains the most agricultural activity out of all the Dutch provinces (CBS, 2020).

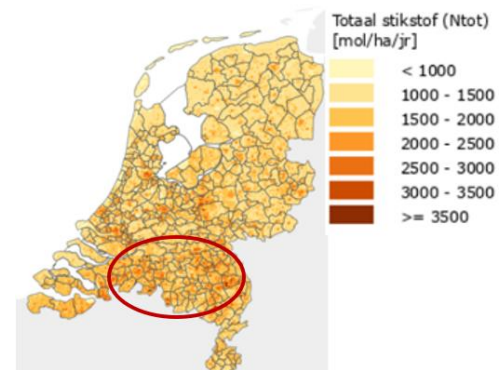


Figure 2: Total Nitrogen in the Netherlands (RIVM, 2023)

3.2 Research approach

For this research, a qualitative method of data gathering was chosen. This was done because qualitative research methods allow for a more detailed collection of data on specific subjects than quantitative research. On top of that, this research tries to highlight farmers' opinions and experiences and looks to find certain similarities or patterns between these. According to Korzilius (2008) "In qualitative research, one often attempts to make a verbal reconstruction of found rules, patterns and structures". That is why qualitative approach proves to be the most appropriate for this research.

To carry out this qualitative method, face-to-face interviews were picked as the research method. This approach was chosen because it allows for the collection of detailed data about individuals' experiences. Unlike surveys, interviews provide greater flexibility when asking question and allow for customization of the conversation to better align with each participant's unique experiences Korzilius (2008).

3.3 Data Collection

The conduction of this research started with a literature review (also called a desk research). In this phase the already existing literature on spatial justice was studied closely. This is done in order to gain insight in key concepts and gather basic knowledge on the topic. Furthermore, this may reveal specific 'gaps' in the existing literature that can be explored in greater detail. The results of this literature reviews can be found in Chapter 2.

After the literature review was done, a series of interviews were conducted with several farmers living in the Dutch province of Noord-Brabant. These interviews were conducted face-to-face (when possible) as mentioned above, and they were semi-structured. "Semi-structured interviews are similar to structured interviews in that the topics or questions to be asked are planned in advance, but instead of using closed questions, semi-structured interviews are based on open-ended questions" (Fox & Trent RDSU, 2006).

In the end, a total of 4 livestock farmers and 1 provincial employee were interviewed. Three of the five interviews were held at the respondent's homes. The other two interviews were held online

(either through a phone call or a Teams video call). In the table below a pseudonym and the type of livestock are mentioned. Due to privacy reasons, the actual names and places of residence of the respondents were left out or censored.

Name	Date and time	Location interview	Type of livestock
Farmer 1	15/04/2025 at 10:30	At respondents' house	Poultry (Hens and roosters)
Farmer 2	15/04/2025 at 12:00	Phone call	Pigs (250 sows and 1700 meat pigs)
Farmer 3	15/04/2025 at 14:00	At respondents' house	Dairy cows and Morio worms
Farmers 4 and 5 (Farmer and his wife)	28/04/2025 at 20:00	At respondents' house	Veal calves (300 bulls and heifers)
Provincial employee	09/05/2025 at 11:00	Teams video call	/

Table 1: Overview respondents

For these semi-structured interviews, two interview guides were made. One with questions for the farmers and one with questions for the provincial employee. All interviews were conducted in Dutch, since this was the native language for all respondents. Because of this, the original interview guides are also in Dutch, but the English translation of the questions will be added below the original text. These interview guides can be found in the appendix (Chapter 9.1 and 9.2).

3.4 Data Analysis

All the interviews were recorded (with the respondent's permission) and transcribed. This transcription was done manually to aid in memorizing the data. This will save time during the analysis phase, as the researcher will already be familiar with the content. The interviews were also transcribed in Dutch. In order to still have the ability to use some quotes from these interviews, the quotes in this research were translated to English. Consequently, this can mean that some quotes are worded a little bit differently, because not every Dutch word has a perfect English translation. The recordings were destroyed after the transcription process was done, as was promised to the respondents.

After the transcription process was done, each interview was coded. Coding makes it easier to analyse the data and find notable similarities or differences. For this, the original plan was to use the computer program Atlas Ti. But due to a system error in the program, it was not possible to use this coding software. For this reason, the transcripts were printed out and coded by hand. The coding process was done in two rounds. In round one, a broader, exploratory approach was used with very specific smaller codes. During round two, some of these smaller codes were merged together into central codes, concepts or topics. This submersion makes it easier to find the central issues and similarities between the interviews. The final codebook can be found in the appendix (Chapter 9.3).

3.5 Positionality

Because qualitative research asks for a more subjective interpretation of the data, the positionality of the researcher is important. As someone who lives in a small town with a lot of farmers in and around the area, I have been around farmers for almost the entire duration of my life. I have old

classmates that are supposed to or have already taken over the family farm and distant family members that are also farmers. My direct family is not a farmer, so I do not know exactly what it is like to be a farmer, and which struggles they face.

During my study (Geography, Planning and Environment) at the Radboud University in Nijmegen, I learned a lot about regulation and climate change problems like the nitrogen crisis. Yet, this is almost all explained from the perspective of a policy maker. That is why I am very interested in researching the 'other side of the coin' and getting the perspective from the farmers. With this research I tried to combine all these interests (farmers, nitrogen crisis and regulation).

4. Results

4.1 Institutions

4.1.1 Legally implemented regulations

An important part of the legally implemented regulations regarding nitrogen emissions in the province of Noord-Brabant is the BOS 2.0 (*in Dutch: 'Brabantse Ontwikkelingsaanpak Stikstof'; in English: 'Brabant Development Approach Nitrogen'*). This 107-page policy document from December 2024 contains an overview of the current nitrogen policy of the province of Noord-Brabant. This policy has been formulated based on 'a top-down governance'. The laws and regulations that are made on a European level, like the Vogelrichtlijn and the Habitatrichtlijn, are incorporated in the national nitrogen policy of the Dutch government. These policies are in turn included in the provincial policies, which get implemented in the municipal policies.

"The government is committed to the European objectives. The government has implemented these in the 'Omgevingswet' and is responsible for realizing the environmental values from the 'Omgevingswet'. Based on the 'Omgevingswet', the province is the responsible authority for taking measures that guarantee nature quality" (Province of Noord-Brabant, 2024, p19).

In other words, the European nitrogen regulations are implemented in the national and provincial nitrogen policy, and it is the responsibility of the Province of Noord-Brabant to make sure these rules and regulations are sufficient to achieve the desired goals.

The aim of the BOS 2.0 is "to make permits for economic and social developments possible again" (Province of Noord-Brabant, 2024). In order to achieve this goal, a number of measures have been drawn up. These measures include generic measures that apply to the entire province, as well as additional, area-specific measures that only apply in and around one of the 21 Natura 2000 areas in Noord-Brabant.

These area-specific measures were drawn up after a calculation by the consulted knowledge consortium, that showed how the generic measures were not sufficient to achieve the intended reduction goals. That the generic measures were not enough to reach the reduction goal was also confirmed by the employee of the nitrogen department during an interview. To solve this problem, the additional area-specific measures were devised.

It is however important to mention that these additional measures from the BOS 2.0 have not yet been implemented. The 17 additional measures that were devised by the province are still being evaluated on how well they will achieve the intended reduction goals. "And whether these [additional measures] will be sufficient to start granting permits, I cannot yet answer that, because we are currently in the research phase" (Provincial employee, 9/05/2025).

According to the provincial employee, various scenarios are being studied in this research phase. For each measure, expectations are calculated with regard to the expected emission and deposition reduction for a light, medium and heavy variant of the measure. These calculations are later submitted to the provincial government board, which will then decide if the measure actually gets implemented.

"You can imagine that we will achieve more effect with the more extreme scenarios, but that may also have other adverse effects, such as little support or difficulty in implementation. [...] But the

greater the effect in reduction, the greater the chance that we can also open up again for, for granting permits in the long term.” (Provincial employee 9/05/2025).

Even though the BOS 2.0 focusses on nitrogen, it is important to keep in mind that nitrogen is not the only stress factor that is causing a decline in nature quality in Natura 2000 areas. According to the provincial employee, hydrology also plays a big part in this. Hydrology refers to “the behaviour and properties of water in the atmosphere” (Waterschap Hunze en Aa’s, n.d.). This applies to both surface water and groundwater.

In terms of rules and regulations, hydrology is included in the ‘Kaderrichtlijn water’ (*in English: ‘Water Framework Directive’*). The Kaderrichtlijn water or KWR is a directive that is set by the European union with the goal to ensure good quality of (natural) water in each partaking European country. Good water quality is important for the habitats of plants and animals, but also for humans. If the natural water is reasonably clear and healthy, it is easier to transform it into drinking water (Unie van Waterschappen, 2022).

In order to reach the goals of the KWR, the Netherlands still has a lot to achieve. Nature restoration, removing water blockages for fish and cleaning the water are things the Dutch still need to work on. Part of this is a responsibility for the Dutch water boards, but another part is a responsibility for other parties, like the agricultural and industry sector. These sectors are often responsible for the high concentrations of nitrogen, phosphate and toxic substances that end up in the water (Unie van Waterschappen, 2022). Because of this, these sectors are also responsible for reducing the amount of substance that reach the water. In the case of the farmers, this can be done by making sure manure does not flush out into streams, rivers and groundwater.

Apart from the BOS 2.0 and the KWR, farmers also need to adhere to other legislation, like animal welfare laws (for example: specific dimensions for the stables) set by the Dutch government, and environmental plans (*in Dutch: ‘omgevingsplannen’*) made by the municipalities. But this large number of rules and regulations can make it confusing for farmers, especially when the rules keep getting altered. “The rules of the game change all the time. And as a result, you do not know where you stand. One thing has not yet been properly completed or another is already coming at you.” (Farmer 5, 2025).

4.1.2 Approach

There are several ways to approach possibly solving the nitrogen crisis. One of these ways is the integral approach. With an integral approach, connections between subjects are considered. This requires the decision maker to look at all the different perspectives and interests that are in play when making a decision. With the integral approach, the bigger picture is very important (Aan de slag met de Omgevingswet, n.d.). According to the provincial employee, this integral approach is currently also used by the province in the formation of the BOS 2.0.

“The BOS 2.0 focusses specifically on nitrogen, but that does not mean that we have become blinded by nitrogen. We also looked at 'okay, if we take these measures, does it not have a negative effect on other goals, for example water goals or something alike, or on an agricultural perspective'. And we took all of that into account” (Provincial employee, 2025).

But as it turns out, not everyone is happy with the current approach. According to some respondents, the current approach feels very one-sided. To them, it does not really feel like the

province is actually looking at more than nitrogen. This point is illustrated during the interview with farmer 2:

“It [the reduction measures] is viewed so... so one-sidedly, only towards nitrogen, that you lose a lot, you lose the integral approach. And that is such a shame, because that integral approach is where the profit lies. For the farmers and the environment, and for the animal.” (Farmer 2, 2025).

Farmer 2 then goes on to explain the problem in the form of a grading system. According to her, right now it seems like farmers need to score a 10 on the part of nitrogen reduction, which causes them to score lower in other areas, like animal welfare and the climate. On the other hand, a more integral approach might cause farmers to score lower on nitrogen reduction, but it can cause them to score higher on the overall picture. In other words, according to farmer 2, the nitrogen reduction measures take away the ability for farmers to also focus on other things, like animal welfare and climate issues.

Farmers 4 and 5 are also critical of the current integral approach that the province of Noord-Brabant is taking. According to them, the problem does not lie with the many factors that the integral approach considers, but with the communication between the several different parties involved in this integral approach. As farmers, they come in contact with many different agencies (for example: the province, the municipality or the waterboard). However, farmers 4 and 5 feel like all these agencies do not communicate enough with each other. They are not aware what the other agencies are doing. This lack of communication causes a lot of confusion, unrest and misunderstanding for the farmers.

In addition to the integral approach, the province of Noord-Brabant also uses the area-based approach. The area-based approach, or ‘gebiedsgerichte aanpak’ (GGA) as it is called in Dutch, is applied in specific areas within the province of Noord-Brabant. These areas differ in size and often consist of nature reserves, stream valleys and the surrounding area that influences them (Provincie Noord-Brabant, n.d.-a) The area-based approach relies on the cooperation of multiple agencies, including the province of Noord-Brabant, the local waterboards and municipalities, as well as other involved parties. For example, in the management of the ‘Strabrechtse Heide’ area, there are 12 cooperating parties involved in the area-based approach (Provincie Noord-Brabant, n.d.-b).

However, this area-based approach also has its disadvantages. Even though the area-based approach is already focused on a smaller area, the projects within these areas can still be really big. According to Farmer 5, this can cause these projects to take a really long time. This is especially hard when it comes to the 2030 reduction deadline, because at the moment of writing this thesis that is only five years away. “It is not a process that you start and realise in 5 years. It is a process of, I think, 25 years.” (Farmer 5, 2025). Also, the time is not the only problem with the area-based approach. Because there are so many parties involved, goals can get mixed up. This means that one measure that works towards reaching one goal can destroy the progress that was made towards another.

Another problem, although this problem is not entirely limited to the area-based approach, is that it can cause differences in approaches between provinces, which can also be viewed as unfair. An example for this that was given in multiple interviews is the ‘stallendeadline’. This 2024 deadline means that outdated stable systems must meet the requirements for ammonia emissions by 2024

(Provincie Noord-Brabant, n.d.-c). Even though the 2024 deadline has been postponed to 2026 for dairy and calf farms, respondents note that this deadline is still much earlier than the deadline in other Provinces.

“Brabant is- is quite ahead, is it not? Look, that stable policy is purely Brabant, right? That does not apply to the rest of the Netherlands, does it? Limburg does not do it either, does it?” (Farmer 3, 2025).

The province of Limburg uses a 2030 deadline in its policy (Vitelia Voeders, 2024). This difference causes some unrest and worries by certain farmers. “But it is true that ever since 2019, well actually ever since 2017, because the stable policy has been in play for longer, that I feel a certain unrest. And, and lately I’ve been worrying about that quite a lot.” (Farmer 4, 2025).

When asked about it, the provincial employee did not think there was an unfair difference between the approaches of different provinces. Even though the employee is not fully up to date with the policy that other provinces implement, she can say that she does not think Noord-Brabant’s policy is much stricter than the policies of other provinces. “Each province has also formulated policy on this in addition to national policy. And those policies do differ from each other in some aspects.” (Provincial employee, 2025). Some provinces choose to put the focus on different things, but just because the province of Noord-Brabant focusses on stable management, does not mean by definition that the policy is stricter than others. “There are differences. And at the same time, we are also all facing the same problem.” (Provincial employee, 2025).

Still, farmers feel like they were targeted more than other sectors. According to farmer 1, farmers are easier targets because the majority of them have sole proprietorships. This means the farmer themselves is liable for all debts that the farm might have or acquire. In case of debt, a closure or a lawsuit, personal assets (like the house that is attached to the farm), or personal bank accounts can be seized to pay for the debt (Harvard Business Society, 2023). This means that in the event that farmers cannot meet the requirements and they receive a fine, or if they have to close their farms, their personal finances or living situation will most likely be heavily affected.

An example of this is given by farmer 3. After some changes in the regulation, his cooperation with Staatsbosbeheer (The largest forest and nature manager in the Netherlands) no longer counted as an agricultural activity. But, because he had filed it as such earlier, farmer 3 now received an administrative sanction of 7 to 8 thousand euro’s, a fine that he had to pay for out of pocket.

Luckily, there is still an alternative to the area-based approach. Solving the nitrogen crisis, can also be tackled with a source-based approach. Source-based means, as the name suggests, tackling the problem at the source. An example of this source-based approach when it comes to emission reduction is ‘daily manure removal’. According to farmer 2, daily manure removal ensures that ammonia and methane emissions do not occur and can therefore not be emitted from the stables. Research cooperation with the university of Wageningen proves that daily manure removal causes a great reduction of methane and ammonia emissions, although at this moment it has only been tested on pig sties (MSc, 2025).

The source-based approach can be seen as a part of the integral approach, because it tackles multiple problems at once. By removing the manure daily, the methane in the manure will not hang around in the air in the stables. This increases the climate in the stables, which in turn

improves animal welfare and lessens medical expenses for the animals. It also ensures that there will be less of a smell leaving the stables, which improves the appeal of the surrounding area.

“If you really start addressing things at the sources, then- then you have solved all kinds of problems. Like better animal health, better profits on the farm because efficiency goes up, nitrogen emissions, odour- odour is much less, the manure problem is less, methane is less. So, in all those areas you then make an improvement.” (Farmer 2, 2025). So, while the integral approach is already in use, farmer 2 thinks there are still some great opportunities that lie in the use of a source-based approach.

4.2 Political attitudes

4.2.1 Jurisdiction

Within the nitrogen crisis there is another problem that needs to be faced. The jurisdiction. The Netherlands is dividend in 3 divisions of power, executive, legislative and judicial power. The legislative power is in charge of making all the legislations and consists of the government and the ‘Staten Generaal’ (*in English; the House of Representatives*) (*De Trias Politica in de Nederlandse Grondwet, 2020*).

The executive power is in charge of implementing the laws and legislations and consists of the ministers and the King. Because the ministers are also part of the government, the legislative and executive power kind of overlap in the Netherlands (ProDemos, n.d.).

The juridical power is in charge of monitoring the implementation of the laws and regulations and consists of the regional courts, the court of Appeal and the Supreme court. These three powers are separated for the purpose of controlling and monitoring each other's role (*De Trias Politica in de Nederlandse Grondwet, 2020*).

And this controlling and monitoring is where the problem lies. After the regulation change with the PAS, a decision made by the judicial power, no new permits can be issued due to the exceeded nitrogen emission limit in the Netherlands. The ‘legislative lockdown’ that followed is not only a problem for the citizens, but also for the legislative and executive power. According to Farmer 5, who is also a municipality worker, the municipality is the first point of contact for farmers and companies when applying for a new permit. Except the municipality only executes the laws and regulations implemented by the provincial and national governments, so they are limited in their options. Therefor the municipalities turn to the province to solve the problem.

Yet. In the interview with the provincial employee, it became clear that these provinces also have limitations in their ability to tackle the nitrogen crisis when the country is on a legislative lockdown. While the provinces have more power than the municipalities, they do not have the same power as the national government. “Of course, there is also really a very important interaction between national policy and provincial policy. The national government just has different powers than the province.” (Provincial employee, 2025). But the national government is tied down by the European legislations. This form of top-down governance makes it very hard to change things around when it comes to the nitrogen crisis. Because of this, the executive and legislative power cannot function like they are supposed to.

This problem of top-down governance also comes up in the interview with Farmer 1. According to him, the Netherlands is a very present member of the European Union. The Netherlands is very

proud to be part of the EU and tries to be a really good member when it comes to partaking in and actually following rules and regulations that have been implemented by the EU.

However, this is where the Netherlands shoots itself in the foot, says Farmer 1. “The Netherlands always wants to be the goody two-shoes. But ... they are now killing themselves with that, because now the Netherlands has promised once again that they are going to achieve certain points, so reductions, and she cannot achieve it at all.” (Farmer 1, 2025). In other words, the Netherlands suffer with a legislation lockdown because it cannot keep up with its commitments to the European Union.

But the legislation problem is not only about the issuing of new permits. As was mentioned in Chapter 2, because the PAS regulation changed a lot of old permits lost its validity. This means that earlier issued permits are no longer legal, even though nothing actually changed in real life. This change in regulation creates a lot of incomprehension for farmers. The majority of farmers do not know where they stand with their current permits, which creates a lot of political uncertainty.

4.2.2 Unheard voices

Because the problem seems to lie higher up on the power ladder, farmers feel like they do not have anywhere to go with their problems, ideas and questions about the nitrogen crisis. For every new idea or innovation farmers have regarding possible ways to reduce nitrogen emissions, they need some kind of permit. But almost no new permits are being issued, so they meet a dead end there.

If they want to try it another way, for example through presenting their ideas at the municipality or the province, they also do not get very far. While these government agencies are very open to discussions, that is where it ends. “At the kitchen table they all say, “yeah that's possible,” and then absolutely nothing happens for 5 years.” (Farmer 5, 2025). So, another dead end for the farmers.

When it comes to participation in policy forming, small scale farmers also feel like they do not stand a chance. According to the provincial employee, the province cooperates with a number of different parties during the process of policy forming. Within these parties, the farmers are represented through different branch organizations, one of which is the ZLTO. So, if farmers want to participate in the decision-making process, they have to go to the ZLTO, who will in turn put their ideas forward during the meetings with the province.

But according to farmer 4, even the ZLTO cannot get much done when it comes to farmers' ideas. So, the farmers also meet a dead end here. This also becomes clear from the interview with farmer 3, who is actually a member of the ZLTO. When asked about the participation of the ZLTO in policy making, he tells us that there is a conversation happening, but everything is going really slow. “Those mills are turning so slowly. These policies have been implemented and, and.... yeah before you get that reversed? Well...” (Farmer 3, 2025).

Because these processes of change take a long time, and because farmers do not really have a point of contact for their ideas and problems, farmers end up feeling unheard. It is because of these factors that farmers often feel mistreated, seeing as they feel they are not really included in the process. The farmers are trying their best to work with the ever-changing policies and regulations, and they have been working on reducing emissions and becoming more sustainable

for multiple years now. But, according to farmer 3, it feels like it is never enough. “From the perspective of the agricultural sector, a lot is already happening. Only, yeah, it seems like it is never enough. And, that is, yeah, so incredibly unfortunate.” (Farmer 3, 2025).

That the industry has been trying to change things around for a really long time now, as is also mentioned by farmer 5. “We have been trying for 20, 30 years already, but nothing about that is actually ever mentioned. I think that's a shame, really.” (Farmer 5, 2025). According to farmer 1, a lot of the unrest and feelings of mistreatment can be solved if the government agencies listen more to what the farmers have to say.

4.2.3 Unequal treatment

This feeling of being unheard and the aforementioned political uncertainty creates a distrust in the government, as was talked about in the social relevance in Chapter 1.2. Especially because new ideas and permit requests get shot down by the jurisdiction almost immediately. Because of this, farmers feel like they are being targeted more than other sectors, as was also briefly mentioned before. When asked about it, the provincial employee said that the province is focussing their measures in areas they can influence, but that the province is not targeting farmers more than other sectors. According to her, the province is acting according to the proportionality principle. This means that all sectors should contribute proportionally to the reduction.

“All sectors have to contribute, because it is a joint problem, but we do look for ways in which we have all sectors contribute proportionally. And that then also means that.... agriculture, for example, is the sector within Brabant that causes the most emissions, so most of the measures we take in Brabant will also be towards, towards agriculture. But that does not mean we do not look at measures within the mobility sector or measures within industry, [...] So we certainly look at all sectors, but we just look proportionally.” (Provincial employee, 2025).

Still, for farmers the treatment feels unfair or unequal. “It seems, it seems like, like everything is being shifted onto us. I do know that that is not the case, of course, because the, the, the businesses are also addressed, but... yeah, the individual farmer is being handled pretty rough.” (Farmer 3, 2025).

Farmer 2 also agrees farmers are an easier target for reduction measures. “Well, the measures are applied where they are sort of socially accepted. And where politicians dare to make a statement. For example, air travel, which in my- in my view is a bit too cheap, yeah. But because that affects so many consumers and affects so many voters, that's kind of being left alone. [...] So I think it is... if you look at it realistically then they [the government] could be a bit tougher on other areas as well yes.” (Farmer 2, 2025).

4.2.3 Role of the media

The feeling of not being heard and the feeling of misunderstanding that often follows for farmers is partly due to the media. As was mentioned in Chapter 1.2, the nitrogen crisis has been widely covered in the news, especially when it comes to the farmers protests. But according to the respondents, these news stories often put them in a bad light. When asked about it, farmer 3 mentions that he stopped reading the news altogether, because it was ‘too demotivating and depressing’.

Farmers 4 and 5 even mentioned that they are more cautious now when they talk about their farm. Even though farmers get a lot of appreciation from fellow citizens, they still feel like the media depicts farmers as ‘animal abusers’ and ‘environmental polluters’, while that is totally not the case. “Through social media, through news coverage, then it feels like, then we feel very... backed into a corner, yes. And that's where you then, that's where you yourself then start to act accordingly. Then you start [acting] a bit ... reserved.” (Farmer 5, 2025).

With these kinds of issues, it is important to get the whole picture. Farmer 5 gives the example of moving a sick cow. “It is not like I can say, ‘come on little bull, we are going to another pen’. The animal does not understand it that way. So, we then have to get them out of his pen. Which is not easy when there are also six others hanging around. And indeed, we use a stick to poke them with, like ‘hey, come on up’ or ‘come with me’. If you only see that image and you only want to see that image, then it looks like we are abusing those animals. But such an animal does not understand why it has to get out of its cage, so it really will not move otherwise.” (Farmer 5, 2025)

Another example are the stories about the farmers protests. In the news and media, the farmers are often portrayed like the bad guys, who block highways just for the fun of it. Farmer 4 has also partaken in these protests. He says that protesting is originally against his nature, but because he felt so unheard he felt like he had no other choice. “Going down fighting” Farmer 5 calls it. “We did not really want that either, but that's where we were like, yeah, we either make it or break it.” (Farmer 4, 2025).

4.3 Other important findings

4.3.1 Economic aspects

Even though it was not the original focus of the research, the ‘economic aspect’ was something that got mentioned a lot within the different interviews with the farmers. Especially when it comes to things such as innovation, permits and thinking about the future. Farmers really want to reduce their nitrogen emissions, and they are willing to invest in the needed innovation or permit to do so. But just like most of the population, farmers do not have infinite money. They have to operate on a budget. This means farmers have to pick and choose between certain investment options.

And when it comes to innovation, there are not a lot of options available. At this moment in time, permits are only issued for innovations when there is enough proof that said innovation actually works in reducing the nitrogen emissions. One of the innovations that permits can be issued for, is the ‘air scrubber’ (*in Dutch: ‘luchtwater’*). The air scrubber is a kind of industrial sized filter that is placed at the end of a stable in order to clear the outgoing air of nitrogen.

But the air scrubber is an expensive invention. Purchasing one leaves the farmer not much money to invest in other things. On top of that the rules about the allowed innovations keep on changing. This makes it hard for farmers to know if they made the right choice by investing in an air scrubber. This point is also made in the interview with farmer 2. “Right now, we’re in such a changing process, so to speak, and that process of change just takes a very long time. And in the meantime, pig farmers have to make choices by installing an air scrubber, which means that future problems coming our way can no longer be solved.” (Farmer 2, 2025). Later in the interview she also mentions that “a farmer can only spend a euro once.” (Farmer 2, 2025).

Aside from the innovation that costs a lot of money, actually acquiring a permit is also pretty expensive. One of the required permits farmers need to be allowed to have a farm is the 'environmental protection permit' (*in Dutch: milieubeschermingsvergunning*). According to farmer 1, it cost between the thirteen to fourteen thousand euros to get this environmental protection permit. This price is so high, because farmers need to hire an expert that can figure out whether their farm meets the requirements for the permit, and, in case they do not meet the requirements, can tell them what needs to be done in order to do.

Because this expert follows all the rules and regulations that are in place, farmers find it hard to understand why some of the permits still get revoked after issuing. When asked what can happen to make farmers feel more like they are treated with respect, farmer 1 mentions that agreements should stay agreements and that issued permits should stay valid. "Yes, the permit is the permit. It would be good if they cannot revoke that permit from me anymore. Back then I got a new- that environmental protection permit, which cost thirteen or fourteen thousand euros to have that sorted out. But then you think, well, we invested those costs, but... look, when one of those higherups comes along and says, 'Well, but yeah, you have the permits, but what you are doing is not allowed. Then I think, well, hello, we had authorised and licenced people check everything. That should then automatically be legally valid, right?'"

To build on that, farmers 4 and 5 also mention the high prices as one of the reasons they wait until the last minute to apply for a permit. As an example, they give the time they had to apply for a permit to adapt their stables in order to meet the stallendeadline. "So, I had it [the permit] ready and I said, we will wait to file until time is almost running out, so to say, because yeah, you do not know what the... Yeah, and so at the last minute, the party was cancelled. [...] It had been postponed. So that was a blessing for me." (Farmer 5, 2025). And they are not the only ones. Farmer 3 mentions that he knows multiple farmers that also wait with applying for a permit due to the ever-changing rules and regulations.

To help with these financial struggles and to battle the hesitancy that lives under farmers, the province has a couple arrangements and subsidies. One of these arrangements was the now closed innovation subsidy. However, a big part of these arrangements and subsidies only apply to farmers who are labelled as 'peak loaders' in nitrogen emissions (*in Dutch: 'piekbelasters'*). This means that the arrangements and subsidies often do not apply to small scale farmers. And even if they do apply, the money farmers get from these arrangements is not always enough to be profitable.

An example of this is given in the interview with farmer 1, when talking about the buyout arrangement. Although farmer 1 is labelled as a peak loader, he would not really have profited from a buyout by the government. This is due to the fact that the stables on his farm are older and therefore worth less money in the case of a buyout. Also, even if farmer 1 quits his farm, his stables could still be leased as a storage space. This all together means that it is more profitable for farmer 1 to not partake in the buyout arrangement.

4.3.2 Future

Another topic that regularly came up in the interviews was the future. With all the uncertainties that farmers face, it makes it hard for them to look ahead into the future. The majority of the farmers have a family(member) who will take over the farm in the event that they decide to stop

(although none of the interviewed farmers plan on stopping soon). But the majority of the farmers mention that continuing the farm in the way they are currently doing is not profitable or sustainable. In the event that a family member wishes to take over the farm, the stables often need some adaptations to stay in line with the changing rules and regulations. Yet they do not really know how or when they can make these 'future proof' adaptations, because the future is so uncertain.

"Look, at this point, yeah, I do not know what to do or how or what, right? Because I can do that [adapting stables to meet requirements], but next thing I know I have done an investment and then, yeah, then it will still not be good enough." (Farmer 3, 2025).

Making a profit was also a hard subject for some of the farmers. This is because farmers are relying on the market when it comes to pricing. But acquiring higher prices for their products does not necessarily mean that a farmer makes more money. Especially when they have to invest a lot of money in the ever-changing policies and permits. "Everything you do costs money, right? Right now, the market is very good, so now there's money. That's true. But there was also a period when the market was very bad and back then farmers just did not have the money to innovate." (Farmer 1, 2025).

This point is also made clear in the interview with farmer 4 and 5. When talking about animal welfare, farmer 4 mentions that most farmers do not the time to stay in the stables twenty-four hours a day, simply for the reason that a farmer needs to do more work to make money. "Only there [in other countries], a farmer walks through the stables all day to see if there is anything wrong. This farmer doesn't, because he has to work in between, otherwise he won't get his groceries paid at the end of the month, to put it mildly, right?" (Farmer 4, 2025).

And the profit is not the only thing that is hard when it comes to the market. The perceptions of Dutch citizens are also very difficult. According to the farmers, there is this idea among the Dutch citizens that farmers only have livestock because they like to, not because it is necessary. But Dutch farmers main goal is farming for food production. Farmers only farm because there is a demand for their product. Without a demand for their products, like meat, milk, cheese and crops, farmers would not have the ability to do their job at all.

Luckily, the realisation that farmers are needed for the food production, is slowly dawning on Dutch citizens, according to farmer 1. The buyouts played a big part in this. Because farms disappeared, food production in the Netherlands also went down, which meant that people had to import some foods from neighbouring countries. But, as farmer 1 explains, the quality and price of foreign food is not as good as that from the food from the Netherlands. That is because the food industry in the Netherlands has developed to a very high level that other countries simply do not have the knowledge and experience for.

5. Discussion

5.1 Interpretation of the results

Based on the results of this research, farmers face a multiple of different problems. The first problem is with the current laws and regulations. The Netherlands is committed to complying with European legislation, especially when it comes to nitrogen and water. The literature mentioned that the Dutch governance system adapted a top-down form of governance. This also became clear from the interviews. The BOS 2.0, which is the document on nitrogen policy from the province of Noord-Brabant, is partly based on the national and international laws and regulations, like the Vogelrichtlijn and the Habitatrictlijn. So, certain targets that are mentioned in these laws and regulations of these higher political levels are also implemented in the provincial policies

But a nationwide legislative lockdown makes it hard to reach these targets. Almost no new permits can be issued in regard to nitrogen. On top of that, some old permits are suddenly declared invalid, which was also mentioned in the literature in Chapter 2.1.3. Something that was not mentioned in Chapter 2 however, is that any permits that can be or are issued, often get shut down immediately due to judicial problems. All these things together create uncertainty for the farmers, which makes some of farmers apprehensive to adapt to the (new) regulations.

Another problem this research uncovered is the problem of the political attitude. During the interviews, multiple farmers mentioned they do not feel heard or seen by the governmental agencies. For small scale farmers there is no real point of contact where they can go with their ideas and problems. If farmers are able to get in contact with municipalities or the province, often times nothing changes after their discussions. This exclusion was not mentioned in the theory chapter, but it is mentioned by farmers to feel as unfair and incomprehensible. This shows that the problem of farmers feeling unheard and excluded is a problem of both recognition justice and procedural justice. This problem could be solved if every party listens to each other with an open mind.

A result that has not often been mentioned in the literature before is that these feelings of unfairness are also created by the political approach that is taken to tackle the nitrogen crisis. Right now, the province often applies an integral or area/based approach. These approaches can create differences between provinces, which, as was mentioned in Chapter 2, are seen as unfair by the farmers. This also goes to show that the problems within the nitrogen crisis are related to procedural justice.

One more finding from the literature that was confirmed by the interviews is that farmers also feel like they are being targeted more than other sectors. Yet, the province employee mentions in the interview that they act on a proportionality principle, and that the measures and regulations are distributed proportionally across sectors.

Another result that was not mentioned in Chapter 2 is that farmers face a problem of social perceptions. While they get a lot of appreciation from fellow citizens, farmers report that they feel like the news and media outlets paints them in a bad light by labelling them as animal abusers or environmental polluters. These views occur because the media often does not look at the bigger picture, but instead only focusses on the things they want to see. These negative social perceptions add to the feeling of mistreatment and uncertainty.

The fourth problem farmers face are the economic aspects. This finding aligns with the findings of the literature (Chapter 2.1.3 'why farmers are angry'). Farmers only have a certain budget they can invest, but there are a lot of options to invest in. Acquiring a new permit of investing in nitrogen reducing innovation often costs a hefty sum. While the province offers economic arrangements or subsidies, these often do not apply to small scale farmers because they are not 'peak-loaders'. Farmers find it difficult to decide what to invest in, because there is a viable risk of doing a bad investment, due to the ever-changing rules and regulations. This also causes a lot of hesitancy and uncertainty amongst farmers.

5.2 Reliability and validity of the research

During this research, a total of 5 interviews were conducted. The reliability of this research is high, because even though personal experiences were questioned, most farmers shared the same problems and opinions.

The validity of the research is not so high, because only 4 out of the 12 340 agricultural companies in Noord-Brabant were interviewed. This means a generalisation cannot be made. The validity can be increased by interviewing more farmers within the province of Noord-Brabant.

5.3 Limitations

Because this interview is about the experiences of farmers within the nitrogen crisis, it made the most sense to interview farmers. Yet it proved to be more difficult than expected to come in contact with these farmers. At first, the ZLTO was contacted to ask if they could help in contacting farmers, but due to the Dutch privacy laws, the organisation was not allowed to share personal details of other farmers, so another way of contact had to be found.

In the end, over 30 farmers were contacted through email, phone call or through the help of family and friends, but only 5 farmers were willing to participate. This lack of willingness to participate is most likely due to the sensitivity of the research topic. It can also be due to the timing of the research, seeing as the majority of the research participants were contacted during spring, which is a busy farming season. Several contacted farmers therefore declined on the basis of 'not enough time'.

Apart from the farmers, someone working at the nitrogen department of the province of Noord-Brabant was also interviewed, to gain more clarity on certain topics. It is important to note however that this provincial employee cannot speak for the entire province. They can only give a small insight into the processes that take place when it comes to creating the provincial nitrogen policy.

There were also some limitations during the analysing process. As was mentioned in the methodology in chapter 3.4, the original idea was to use the software, Atlas TI to aid in the coding process. But due to a system error, Atlas TI was not available, and the choice was made to code everything by hand with pen and paper. This proved to be a limitation later in the research, because coding by hand made it harder to find the parts of the transcriptions in which certain aspects were mentioned. This made it harder to write the results, because a big part of the time was taken up by flipping through the transcripts in search of a certain sentence.

5.4 Recommendations

Based on the results of this research, a couple of recommendations can be made regarding follow-up research. When doing follow-up research, the choice could be made to interview more farmers within Noord-Brabant. This could be done to get an even more complete understanding of their experiences than this thesis could. Another option would be to interview farmers from multiple provinces and compare their experiences. This was not feasible in this thesis research.

Follow-up research could also choose to focus on other kinds of farmers. For this research, the choice was made to only interview livestock farmers, as they were mentioned in the literature to be the 'most impacted'. Yet, other research could test if this is really the case by interviewing other kinds of farmers, like an arable farmer or a horticultural farmer.

6. Conclusion

The point of this research was to investigate how institutions and political attitudes influenced the experience of the nitrogen crisis for livestock farmers in the Netherlands. After doing the desk research and conducting several interviews with farmers and employees of the province of Noord-Brabant, this research questions can now be answered.

However, before an answer to the research question is given, the subquestions need to be answered first. The first subquestion was as follows: “What nitrogen policy is implemented in the province of North Brabant?”. The province of Noord-Brabant has the BOS 2.0 that contains its nitrogen policy. This policy document contains several generic as well as a total of 17 area-based measures that are aimed at reducing the nitrogen emissions in the province. These measures make up an integral approach to solving the nitrogen crisis. However it is important to note that these 17 additional area-based measures have not been implemented yet, because they are still being studied on their effectiveness.

The second subquestion asks: “How does this policy differ from the nitrogen policies in other provinces?”. According to the provincial employee, there is by definition no big difference in nitrogen policy between the province of Noord-Brabant and other provinces. She does say that each province focusses on different aspects of the nitrogen crisis, but that this should not make a big difference in the long run, because everyone is working towards solving the same problem. Yet the interviewed farmers feel like the province of Noord-Brabant mandates stricter reduction deadlines than other provinces. This perceived difference makes farmers feel especially targeted.

The last subquestion reads: “What are the political attitudes towards farmers within the nitrogen crisis?”. Due to the top-down governance that the Dutch governance system has, farmers have no clear point of contact to go to with ideas, problems and questions regarding the nitrogen crisis. This makes them feel excluded from the whole decision-making process.

So, now to shortly answer the research question, which is as follows: “How do institutions and political attitudes influence the experience of the nitrogen crisis for livestock farmers in Noord-Brabant?”. Farmers experience a lot of feelings of uncertainty, unfairness and incomprehension when it comes to the nitrogen crisis. Institutions and political attitudes only amplify these feelings. Luckily, all is not lost. If all parties listen to each other with an open mind, there is still light at the end of the tunnel!

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9. Appendix

9.1: Interview guide Farmers

Om te beginnen, wil ik u graag bedanken voor uw deelname aan dit interview. Ik zal me eerst even voorstellen. Ik ben Elle en ik studeer Geografie, Planologie en Milieu aan de Radboud universiteit. Voor mijn scriptie doe ik onderzoek naar boeren en de stikstofproblematiek.

Het interview zal ongeveer 30 minuten duren en wordt opgenomen, met uw toestemming. De opname wordt alleen door mij beluisterd voor het transcriberen van het onderzoek, daarna wordt deze verwijderd. Alle antwoorden die u geeft zijn anoniem en zullen alleen door mij bekeken worden voor het verwerken van de resultaten.

Ik wil graag benadrukken dat u op ieder moment kunt stoppen. Ook kan u na het interview nog altijd antwoorden aanpassen en verwijderen. Mocht u naderhand toch niet willen dat dit interview gebruikt wordt voor mijn onderzoek dan kan u dat ook aangeven en verwijder ik alle informatie.

Heeft u nog vragen wat betreft het interview voor we beginnen?

Do you have any questions about the interview before we start?

1: Introductie

1. Wat voor boerenbedrijf heeft u?

What kind of farm do you have?

2. Hoe lang doet u dit werk al?

How long have you been doing this work?

- a. Wie neemt het bedrijf over als u stopt?

Who will take over the farm if you decide to stop?

2: Instituties/stikstofmaatregelen

1. Bent u binnen uw werk veel bezig met stikstof(uitstoot)?

Do you deal with nitrogen (emissions) a lot within your work?

- a. Zo ja, hoe dan? (voorbeelden?)

If so, in what ways? (examples?)

2. Hoe beïnvloeden de stikstofmaatregelen (van Provincie Noord-Brabant) uw werk?

How do the nitrogen reduction measures (from the province of Noord-Brabant) affect your work?

- i. Kunt u hier een voorbeeld van geven?

Could you give me an example of this?

- b. In hoeverre ervaart u positieve effecten van dit beleid?

To what extent do you experience positive effects of this policy?

- i. Kunt u hier een voorbeeld van geven?

Could you give me an example of this?

- c. In hoeverre u hinder van dit beleid?
To what extent are you inconvenienced by this policy?
3. Zijn er naast de maatregelen van de Provincie nog andere maatregelen/regels waar u zich als boer aan moet houden (met betrekking tot stikstof)?
Are there any other measures/rules that you, as a farmer, have to comply with (regarding nitrogen) in addition to the Province's measures?
- a. Zo ja, welke maatregelen?
If so, which ones?
4. Hoe beïnvloedden deze stikstofmaatregelen uw werk?
How do these nitrogen reduction measures affect your work?
- i. Kunt u hier een voorbeeld van geven?
Could you give me an example of this?
- b. In hoeverre ervaart u positieve effecten van dit beleid?
To what extent do you experience positive effects of this policy?
- i. Kunt u hier een voorbeeld van geven?
Could you give me an example of this?
- c. In hoeverre u hinder van dit beleid?
To what extent do you experience negative effects of this policy?
5. In hoeverre denkt u dat voorgaande beleidsmaatregelen van invloed zijn op de huidige stikstofproblematiek?
To what extent do you think previous policies affect the current nitrogen problem?
- a. Kunt u hier een voorbeeld van geven?
Could you give me an example of this?
6. Denkt u dat er veel verschil is tussen de maatregelen van Provincie Brabant en de maatregelen in andere provincies?
Do you think there is much difference between the measures of Province of Brabant and those in other provinces?
- a. Waarom wel/niet?
Why (not)?
- b. Voorbeelden?
Could you give me an example of this?
7. In welke mate denkt u dat deze maatregelen eerlijk verdeeld zijn binnen de samenleving?
To what extent do you think these measures are fairly distributed within society?
- a. Waarom wel/niet?
Why (not)?
- b. Wat zou er gedaan kunnen worden om deze verdeling eerlijker te maken?
What could be done to make this distribution fairer?
8. In hoeverre denkt u dat de huidige stikstofmaatregelen haalbaar zijn om de stikstof reductie doelen van 2030 te behalen?

To what extent do you think the current nitrogen measures are feasible to achieve the 2030 nitrogen reduction targets?

- a. Niet haalbaar? → Waarom niet?
Why (not)?
- b. Wat voor alternatieve maatregelen/oplossingen werken volgens u beter/het beste?
What alternative measures/solutions do you think work better/best?

9. In hoeverre bent u van mening dat innovatie een goede oplossing voor de stikstofproblematiek kan zijn?

To what extent do you believe that innovation can be a good solution to nitrogen problems?

- a. Zo ja, (hoe) bent u bezig met innovatie?
If so, (how) are you do you deal with innovation?
- b. Zo nee, waarom niet?
If not, why?

3: Politiek/representatie

1. Vindt u dat er genoeg aandacht wordt gegeven aan de stikstofproblematiek door de politiek?

Do you think enough attention is being given to nitrogen issues by politicians?

- a. Zo nee, wat kan er dan anders/beter?
If not, what could be done differently/better?

2. Vindt u dat er genoeg aandacht wordt gegeven aan boeren/boerenbedrijven (in het algemeen) door de politiek?

Do you think enough attention is given to farmers/farms (in general) by politicians?

- a. Zo nee, wat kan er dan anders/beter?
If not, what could be done differently/better?

3. In hoeverre vindt u dat u (als boer) met respect behandeld wordt door de politiek?

To what extent do you feel that you (as a farmer) are treated with respect by politicians?

- a. Zo niet:
If not:
 - i. Waar komt dit door denkt u?
What do you think is the reason for this?
 - ii. Wat kan er beter?
What could be improved/done differently?

4. In hoeverre vindt u dat u (als boer) met respect behandeld wordt door andere Nederlanders?

To what extent do you feel that you (as a farmer) are treated with respect by other Dutch people?

- a. Zo niet:
If not:

- i. Waar komt dit door denkt u?
What do you think is the reason for this?
 - ii. Wat kan er beter?
What could be improved/done differently?

- 5. In welke mate denkt u dat de politiek van invloed is op het belang van de stikstofproblematiek binnen de samenleving?
To what extent do you think politics influences the importance of nitrogen issues within society?

- 6. In hoeverre heeft u het gevoel dat u inspraak heeft op/in de politiek?
To what extent do you feel you have a say in/in politics?
 - a. Zo niet:
If not:
 - i. Waar komt dit door denkt u?
What do you think is the reason for this?
 - ii. Wat kan er beter?
What could be improved/done differently?

Overig

- 1. Zijn er nog andere dingen van belang bij de stikstofcrisis die ik gemist heb?
Are there any other things of interest in the nitrogen crisis that I missed?

Dit waren al mijn vragen. Nogmaals bedankt dat u de tijd heeft genomen om al mijn vragen te beantwoorden. Is er nog iets aan het interview dat u zou willen veranderen? Dit kan iets zijn over u antwoorden of wat feedback over het interview zelf.

Nu we echt alles hebben beantwoord, wil ik u eraan herinneren dat alles wat we hebben besproken vertrouwelijk is en dat u anoniem zult blijven. Als u op enig moment (nadat we dit gesprek hebben beëindigd) uw antwoorden wilt wijzigen of het interview wilt verwijderen, dan kan dat. Als u nog andere vragen voor mij heeft, laat het mij dan weten. Ik zal mijn e-mailadres en telefoonnummer delen nadat we de opname hebben gestopt.

9.2: Interview guide Provincial employee

Om te beginnen, wil ik u graag bedanken voor uw deelname aan dit interview. Ik zal me eerst even voorstellen. Ik ben Elle en ik studeer Geografie, Planologie en Milieu aan de Radboud universiteit in Nijmegen. Voor mijn scriptie doe ik onderzoek naar boeren en de stikstofproblematiek. Specifiek naar de persoonlijke ervaringen, gevolgen en eventuele problemen van veehouderijen in Noord-Brabant. Hoewel het onderzoek voornamelijk gericht is op de ervaringen van boeren, kwamen tijdens het literatuuronderzoek en tijdens de afname van de interviews een aantal dingen uit het stikstofbeleid van de Provincie Noord-Brabant naar voren waar ik mogelijk wat extra verduidelijking/uitleg over nodig heb. Dit is dan ook de reden dat ik u gecontacteerd heb.

Het interview zal ongeveer 30 minuten duren en wordt, als u hier toestemming voor wilt geven, opgenomen. De opname wordt alleen door mij beluisterd voor het transcriberen van het onderzoek, daarna wordt deze verwijderd. Alle antwoorden die u geeft zijn anoniem en zullen alleen door mij bekeken worden voor het verwerken van de resultaten.

Ik wil graag benadrukken dat u op ieder moment kunt stoppen. Ook kan u na het interview nog altijd antwoorden aanpassen en verwijderen. Mocht u naderhand toch niet willen dat dit interview gebruikt wordt voor mijn onderzoek dan kan u dat ook aangeven en verwijder ik alle informatie. Heeft u nog vragen wat betreft het interview voor we beginnen?

Do you have any questions about the interview before we start?

1: Introductie

1. Wat houdt uw werk precies in?
What exactly does your work entail?
2. Hoe lang doet u dit werk al?
How long have you been doing this work?

2: Instituties/Stikstofmaatregelen

Een van de mogelijke regelingen die nog open staat voor boerenbedrijven is de verplaatsingsregeling.

One of the possible arrangements still open to farmers is the relocation arrangement.

1. Wat is precies het doel van deze regeling?
What exactly is the purpose of this arrangement?
2. Waarheen kunnen boerenbedrijven zich (binnen Nederland) dan verplaatsen?
Where could farms relocate to (within the Netherlands)?

Op de webpagina van 'aanpak stikstof' van de Provincie Noord-Brabant staat: "De maatregelen in de BOS 2.0 moeten ervoor zorgen dat vergunningen voor economische en maatschappelijke ontwikkelingen weer mogelijk worden." In de Bos wordt al benoemd dat het huidige pakket met stikstofmaatregelen nog niet voldoende is om deze doelen te behalen.

3. In hoeverre denkt u dat dit doel wel bereikt wordt door de aanvullende stikstofmaatregelen?

In de BOS 2.0 en tijdens eerdere interviews komt naar voren dat een groot deel (ca. 65%) van de stikstof in Brabantse natuurgebieden afkomstig is van het buitenland. Het was mij niet helemaal duidelijk hoe dit dan opgenomen wordt in de maatregelen.

4. Wordt deze emissie uit het buitenland meegenomen in de gebiedsgerichte aanpak?
 - a. Zo ja, hoe dan?

Tijdens het afnemen van interviews met de veehouderijen kwam naar voren dat de respondenten vinden dat Noord-Brabant een strengere stikstof aanpak heeft dan andere provincies

5. In hoeverre denkt u dat de stikstofmaatregelen van Noord-Brabant strenger zijn dan die van andere provincies?
 - b. Waarom wel/niet?
6. In welke mate denkt u dat deze maatregelen eerlijk verdeeld zijn binnen de samenleving?
 - c. Waarom wel/niet?
 - d. Wat zou er gedaan kunnen worden om deze verdeling eerlijker te maken?

Boeren geven aan terughoudend te zijn met innovaties/aanpassing in verband met onzekerheid over de toekomst. (Denk aan het niet terugverdienen van investering/falende resultaten)

7. In hoeverre bent u van mening dat innovatie een goede oplossing voor de stikstofproblematiek kan zijn?

3: Politiek/representatie

7. Vindt u dat er genoeg aandacht wordt gegeven aan de stikstofproblematiek door de politiek?
 - a. Zo nee, wat kan er dan anders/beter?
8. Vindt u dat er genoeg aandacht wordt gegeven aan boeren/boerenbedrijven (in het algemeen) door de politiek?
 - a. Zo nee, wat kan er dan anders/beter?
9. In hoeverre vindt u dat boeren met respect behandeld worden door de politiek?
 - a. Zo niet:
 - i. Waar komt dit door denkt u?
 - ii. Wat kan er beter?
10. In welke mate denkt u dat de politiek van invloed is op het belang van de stikstofproblematiek binnen de samenleving?
11. In hoeverre heeft u het gevoel dat boeren inspraak hebben op/in de politiek (het beleid en het beslissing proces)?
 - a. Zo niet
 - i. Waar komt dit door denkt u?
 - ii. Wat kan er beter?

- b. Worden kleinere boerenbedrijven ook meegenomen in het participatie proces?

Overig

3. Tijdens het onderzoeken van de stikstofmaatregelen van de provincie Noord-Brabant kwam ik steeds weer terug bij de BOS (2.0). Is er nog een andere plek waar ik kan kijken om de stikstofmaatregelen van provincie Noord-Brabant te vinden?
4. Zijn er nog andere dingen van belang bij de stikstofcrisis die ik gemist heb?

Dit waren al mijn vragen. Nogmaals bedankt dat u de tijd heeft genomen om al mijn vragen te beantwoorden. Is er nog iets aan het interview dat u zou willen veranderen? Dit kan iets zijn over u antwoorden of wat feedback over het interview zelf.

Nu we echt alles hebben beantwoord, wil ik u eraan herinneren dat alles wat we hebben besproken vertrouwelijk is en dat u anoniem zult blijven. Als u op enig moment (nadat we dit gesprek hebben beëindigd) uw antwoorden wilt wijzigen of het interview wilt verwijderen, dan kan dat. Als u nog andere vragen voor mij heeft, laat het mij dan weten. Ik zal mijn e-mailadres en telefoonnummer delen nadat we de opname hebben gestopt. Heeft u graag dat ik het onderzoek doorstuur nadat het af is?

9.3: Codebook

Code	Meaning
Animal welfare	Mentions of animal welfare (within stables)
Approach	Ways to approach solving the nitrogen crisis (includes the area-based approach, the source-based approach and the integral approach)
Arrangements	Arrangements made by the Province of Noord-Brabant, to assist farmers in reducing their nitrogen emissions (including buy outs, termination schemes and innovation schemes)
Business size	Mentions of the size of the businesses (in this research either medium-sized or small)
Change	Both the presence and the absence of change
Cooperation	Cooperation between certain people/parties
Economic aspect	Mentions of the economic aspects (includes investments, subsidies, costs and possible profits)
Emission	Mentions of emission
Equality	Mentions of equality (or the lack thereof)
Food security	Mentions of food (in)security
Foreign countries	Mentions of foreign countries
Future	Mentions of the future (includes future expectations and uncertainty about the future)
Innovation	Mentions of innovation
Internal differences	Differences within farmers' opinions and actions
International trade	Export/trade across borders
Jurisdiction	Mentions of lawsuits
Knowledge	Both the presence and the absence of knowledge
Labour-intensive	Mentions of how farming is labour-intensive
Laws and regulations	Mentions of laws, (ministerial) regulations, and general measures regarding the nitrogen policy in Noord-Brabant (including European legislation, as well as Provincial policies, other legal agreements and mentions of Natura 2000 areas)
Long time processes	Mentions of how things take a long time
Manure processing	Mentions of ways for manure processing
Market	Mentions of the market (includes national trade, supply and demand)
Measures	All the measures a farmer has to take into account within their farm (includes reduction measures, certain stable requirements, management measures, etc.)
Measuring emissions	Mentions of (the way the Netherlands is) measuring nitrogen emissions
Permits	Mentions of permits
Political uncertainty	Mentions of the (un)reliability of politics

Product quality and composition	Everything related to the product quality and composition (includes mentions of high-quality products, the dry matter content and the organic content)
Reducing	Mentions of reducing (nitrogen) emissions
Social perception	How people receive, interpret and share information about the nitrogen crisis and its legislations (includes communication and feelings of misunderstanding, confusion and unrest, as well as the role of the media)
Unheard voices	Feelings of not being heard or taken seriously (including (failed) farmer initiatives, experiments and pilots)
Vulnerable farmers	Regards to the feeling that farmers are 'an easy target' for the implementation of laws and regulations