

Nitrogen emission in the Netherlands

A qualitative study of the effects of the Dutch Council of States nitrogen emission verdict on infrastructure in the Netherlands

Abstract: *This paper reviews the influence of the Dutch Council of States nitrogen emission verdict on infrastructure projects in the Netherlands. It aims to research the different effects on and possible solutions for future infrastructure projects. Since the verdict, permits can no longer be granted for infrastructure projects, when there is not a clear proposition on how the nature is going to be compensated for the emitted nitrogen during the project. As this topic has grown to be very politically sensitive in the Dutch government, the research is conducted through a LexisNexis analysis, analysing how the information is published in the Dutch media. There were six main effects of the nitrogen emission verdict mentioned: effects for the agricultural sector, delay of Lelystad Airport, delay of another infrastructure project, building of new houses or districts, effects for the economy and effects for industrial projects. Six possible solutions were also mentioned; decrease in livestock, change the record of decision, new permit track, recovery of nature, decrease the maximum speed limit and the ADC-test. To conclude, the nitrogen emission verdict of the Dutch Council of State affects infrastructure projects in the Netherlands in a negative way, both time- and cost-wise.*

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Background

On the 29th of May 2019, the Dutch Council of State announced that the current nitrogen programme can no longer be used as a measure to license building projects (Raad van State, 2019). The Netherlands works with the so-called Programma Aanpak Stikstof (PAS); the programme for reducing nitrogen. The goal is to protect nature and economic development at the same time. Up until the 29th of May 2019, future activities, such as building projects, were granted a permit even though it was clear that the project would be harmful for surrounding protected nature areas. The permit could be granted anyways, with only a vague indication that in the future, there will be positive compensation for these protected nature areas (Raad van State, 2019).

Nitrogen on itself is not necessarily harmful for nature or human being. However, through traffic, industry and advanced livestock farming, nitrogen is being emitted combined with oxygen (nitrogen dioxide), or combined with hydrogen (ammonia). An increased percentage of nitrogen dioxide or ammonia can be harmful for human health, and also for nature, once the gasses find the ground. It increases the level of nutrients in the ground, which results in specific plant species slowly going extinct, because they cannot grow in high level nutrient ground. Therefore, the overall nitrogen emission has to be reduced in order to keep nature and humans healthy, also on the long term (RIVM, 2019).

The European Court of Justice, with regards to the European Habitats Directive (European Commission, 2019), eventually judged that the nature compensation related to an activity, must be evident on forehand. Otherwise the Dutch government is not allowed to provide a permit for the activity. As the PAS does not fulfil on this demand, the PAS may not be used as a base for permission.

After this verdict, the Dutch minister of Agriculture, Nature and Food quality Carola Schouten set up a list with projects that will witness possible consequences from the Council of States decision (Rijksoverheid, 2019). Classified by ministry, it is very clear that plenty of infrastructural projects, varying from highway to railway and waterway projects, will possibly be witnessing consequences. Below in the map, all Dutch highways are shown, with in blue the planned highway projects that are on the ministers list of possibly harmed by the nitrogen emission verdict. As can be seen in the map, it is clear that if all these planned projects are indeed harmed by the verdict, it will have great consequences for the Dutch infrastructure. The common denominator in all these infrastructural projects is that in some way or another, continuing these projects in the way they are planned or taking place now, means too much nitrogen emission without enough compensation for the harmed surrounding protected nature areas. The remaining question therefore is, what and how big will the consequences be?

Since the nitrogen emission verdict, countless debates have taken place in the Dutch government (Tweede Kamer, 2019), searching for solutions for all the projects that are now delayed. There are a lot of stakeholders involved, all harmed in some way by the verdict and all with a different opinion about the subject. The political stakes are high, there have been a lot of protests and it has become a very sensitive topic countrywide.

This research is relevant to infrastructure policy makers, as after the verdict of the Dutch Council of State, changes will have to be made in infrastructure policy and this research can help by starting to indicate the consequences and

possible solutions for infrastructure policy in the future. As this topic is fairly new due to the fact that the verdict was only several months ago, there is hardly any scientific research done in the subject yet, which makes this research scientific relevant as well. Also, this research can be useful for different stakeholders involved in this topic; the Ministry of Infrastructure, Rijkswaterstaat, involved provinces and municipalities, environmental activists and building companies.



Research problem

Since the verdict of the Dutch Council of State on the 29th of May 2019 (Raad van State, 2019), there is no protocol on how to handle all the different projects possibly harmed by the verdict. Some projects are considered necessary to complete, mostly due to safety issues, although it is not clear how to within the new regulations. The biggest consequences of the verdict are yet unclear and new solutions need to be sought for.

The central research question is stated as the following:

“How does the nitrogen emission verdict of the Dutch Council of State, as reflected in the Dutch media, affect infrastructure projects in the Netherlands?”

To draw a conclusion to this central research question, different sub-questions need to be answered first:

- What does the verdict of the Dutch Council of State exactly entail, regarding infrastructure projects?
- What are the biggest consequences of the nitrogen emission verdict, as mentioned in the Dutch media?
- Which possible solutions for infrastructure projects are being proposed in the Dutch media and what do the solutions entail?

This research is built up as follows. First, a theoretical background to the subject will be given. Then, the methodology of the research will be explained. Next, the results will be presented and discussed. Finally, the research ends with a conclusion and a reflection on the process. The last section entails the references and the appendix.

Theoretical framework

In order to understand and conduct this research, different concepts must be defined at first. As the subject of nitrogen emission and the verdict of the Council of State are rather recent happenings, very little research into this subject has been done. The most relevant concepts and theories to this research are green infrastructure, sustainable infrastructure and environmental assessment criteria.

The concept of green infrastructure is used in many different researches. All the researches into green infrastructure use a rather similar explanation to green infrastructure. Bag (2016) explains green infrastructure as an “integrated approach towards proper ecological and sustainable use of land and space to create green space”. This approach to green infrastructure does not focus necessarily on the infrastructure itself, but on a balance in the environment between green areas and pollution, resulting in economic and environmental benefits. Benedict et al. (2006) also define green infrastructure as a network of green natural spaces that connect with each other. As a result, the green spaces conserve the natural ecosystem and provide other benefits for the people. The researchers also stress that there is a misperception of people thinking green open spaces are just nice to have, where actually it is necessary to have them (Benedict et al., 2006) and human kind cannot naturally live without, since green areas provide oxygen and stabilise the air consistency. Mejía et al. (2015) explain green infrastructure as a “multifunctional approach that focuses on connectivity”. It includes green areas in both rural and urban settings. While Bag (2016) and Benedict et al. (2006) lay the focus on green infrastructure being some sort of compensation for economic and environmental benefits, Mejía et al. (2015) explains connectivity as the most important component of green infrastructure. Also, green infrastructure contains all three aspects of sustainability, being environmental, social and economic (Mejía et al., 2015). Environmental, as green infrastructure protects the nature, water and naturally supports human life. Social, because it contributes to human health. And economic, as it enables economic growth in a sustainable way. Wirth et al. (2018) also explain green infrastructure within the context of environmental, social and economic benefits. In addition, Wirth et al. (2018) also mention the need for close co-operation between scientific, political and administrative actors.

Regarding this research, the concept of green infrastructure can be used, as it might offer a solution for the affected infrastructure projects on the nitrogen verdict, providing enough balance between the ability to build and renovate infrastructure and keep the nature areas protected, without emitting nitrogen above the allowance level.

Pour-Ghaz (2013) researched sustainable infrastructure materials and states that an increased service life of the infrastructure might result in an overall decrease in the energy consumption and negative effects on the environment. This can be achieved as with an increased service life, comes a decreased number of repairs and less replacements, two operations that consume energy and emit negative effects on the environment. Ferrer et al. (2018) uses the concept of sustainable infrastructure in an urban context. The researchers explain the key to sustainable infrastructure to be the ability to “meet the needs of the present generation without compromising the chances of the future generations to fulfil their own needs” (WCED, 1987). This is also applicable on subjects other than infrastructure. Also, as with the concept of green infrastructure, sustainable infrastructure should include socio-economic and environmental benefits at the same time (Ferrer et al., 2018). Sustainable infrastructure must incorporate methods to alleviate negative effects on the environment, but it must also provide a better quality of life for human beings (Martos et al. 2016).

Martos et al. (2016) stress the importance and need for sustainable urban policies now more than ever, as the increasing use of vehicles and rising energy consumption impact the environment negatively. The researchers state that there is an imbalance between human development and the environment, two factors that are supposed to evolve together.

The concept of sustainable infrastructure, and its economic, environmental and social components, can be used in this research. When the possible consequences of the nitrogen emission verdict have been defined, possible solutions have to be sought for. The different components of sustainable and green infrastructure might help in defining those solutions, resolving the problem at hand.

Thomé et al. (2016) combine the concepts of green and sustainable infrastructure. According to the researchers, green infrastructure is a part of sustainable infrastructure. Next to that, sustainable infrastructure also contains sustainable buildings. This way, both environmental and economic aspects are covered in the concept.

In order for infrastructure to be classified as sustainable, of course some sort of measurement is needed. Dasgupta & Tam (2005) invented a system where there are three stages in the decision making process of the project; the pre-project planning, project implementation and ongoing operations. The idea is to evaluate the chosen options in between every stage to maximize the sustainability. Combining this idea of project evaluation (Dasgupta & Tam, 2005) with the concepts of Thomé et al. (2016), solutions for the nitrogen emission verdict can be systematically discussed and invented. The components of sustainable infrastructure are stated, as well as the process to implement them in the project planning.

Apart from the possible solutions, such as sustainable and green infrastructure, and the procedure of how it can be implemented in future project planning, it is also important to study environmental assessment criteria for infrastructure. Sahely et al. (2005) researched sustainable urban infrastructure in light of environmental and socioeconomic considerations. As main environmental sustainable criteria, optimal resource utilization and minimal waste production are mentioned. Also, the idea of Life-Cycle Assessment is explained (Sahely et al., 2005). Life-Cycle Assessment, also known as LCA, entails the evaluation of environmental implications of products and projects throughout the lifespan, so from raw material to end of life. Sahely et al. (2005) name as the four main components of LCA goal and scope definition, inventory analysis, impact analysis, and improvement analysis. So for each product or project, in this case urban infrastructure, the goals and scope are defined with clear boundaries; an indication is made of all energy and raw materials that will be used throughout its life cycle; these energy and raw materials are categorized in different environmental impact categories; and the whole process is evaluated for future needs and opportunities to decrease the environmental burden of an infrastructure project.

Inyim et al. (2016) also researched environmental assessment, of urban pavement infrastructure. The concept of Life-Cycle Assessment is used as well. Next to the four mentioned components, three other approaches of LCA are mentioned and explained. The first is the Input-Output LCA, where all input and all environmental output is being analysed as a whole. Second is the Process LCA, where each environmental emission and impact is analysed separately, provided that the boundaries of the project are clearly defined. Last, there is the Hybrid LCA, that combines both Input-Output and Process LCA to complete a most thorough assessment.

For this research, the concept of Life-Cycle Assessment as environmental impact measurement can be used. When planning infrastructural projects, through Life-Cycle Assessment the future environmental impact can be measured. This can be taken into account when planning sustainable and green infrastructure.

Conceptual model

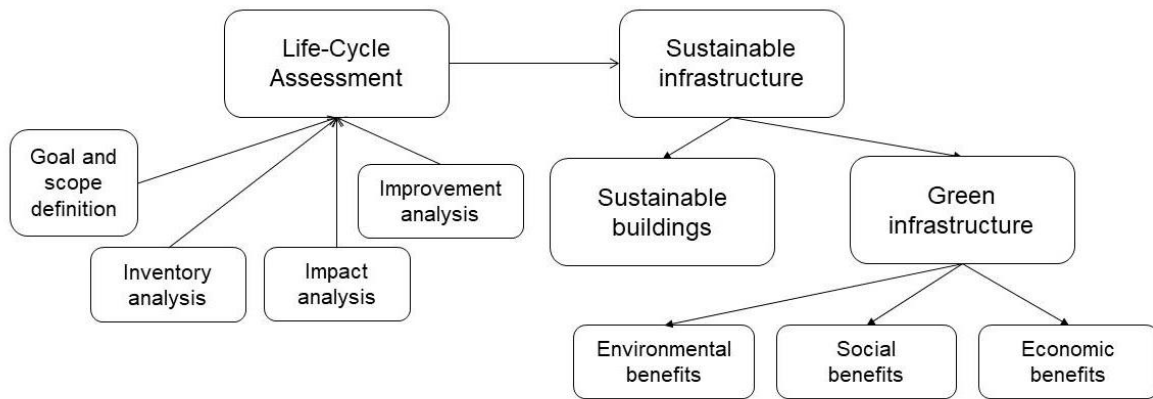


Figure 1: Conceptual model

The conceptual model above is based on the concepts in the theoretical framework. Through qualitative research based on Dutch media publications, the consequences of the Dutch Council of States nitrogen emission verdict for infrastructure in the Netherlands will be researched. The components of Life-Cycle Assessment can be used as a measurement for future sustainable infrastructure projects. As a result of this, solutions such as green infrastructure can be introduced.

Expectations

As the research will be conducted with a qualitative research method and based on literature and the conceptual model, an expectation of the outcome of this research can be set up. Since the verdict of the Dutch Council of State was quite recent, there are still a lot of uncertainties surrounding this topic, which makes it harder to define clear expectations or in fact any expectations in such an early stage. Based on the literature, it might be expected that if infrastructure projects experience negative effects from the nitrogen emission verdict of the Dutch Council of State, new environmental impact measurements need to be found and solutions have to be sought for to continue infrastructural growth.

Methodology

This research was intended to be conducted through a qualitative research method (Clifford et al., 2016), being expert interviews. As “the effects of the new nitrogen emission plan” is a fairly broad concept and difficult to define in for example a survey, in-depth interviews could provide a better understanding of the situation. This way, the personal opinion and point of view of the respondents is better clarified than when using for example surveys, which makes the data more useful for this research.

However, due to the fact that the subject of nitrogen is very up to date and a lot of politics is involved, most policymakers were not keen to speak about the subject and their point of view yet. Everything is still very uncertain and the Dutch government is busy implementing new laws about everything concerning nitrogen emission. Therefore, it was not possible to obtain enough interviewees, which would result in not enough data and not being able to finish the research. As a result, a different qualitative research method was chosen; a LexisNexis analysis. LexisNexis provides a database with among other things published new articles from over the entire world, that can be used to study a certain topic and how it is reflected upon in the media.

To obtain answers for the first sub-question, mostly secondary data was used, such as news articles and publications concerning the nitrogen emission verdict of the Dutch Council of State. Also, more information was found in published news articles in the LexisNexis database concerning the subject. For the second and third sub-question, the LexisNexis database was used to obtain the data and analyse it.

The LexisNexis database consists of all publications on a subject, with many searching and filter possibilities. The search in the LexisNexis database combined the following commands: ‘stikstof’ AND ‘infrastructuur’ (nitrogen AND infrastructure). For this research, only the Dutch papers NRC Handelsblad, de Volkskrant and the FD were used, as these papers published more in depth articles on the topic and provided more opinions than only facts, as most other newspapers did. All articles on these subjects in the mentioned newspapers between 29th of May (the date of the Dutch Council of States nitrogen emission verdict) and the 1st of December 2019 were considered. As the focus was on infrastructure projects, some articles were not included in the research, that only mentioned the Ministry or Minister for Infrastructure but did not further proceed on the topic of nitrogen emission and infrastructure projects. Also, some articles were presented double, one as the paper version and one as the online version, so these were taken out of the sample as well. This resulted in 26 articles used for this research. In Appendix A a complete list is shown with title, date of publication and paper per used article.

After gathering all the useful articles, the texts were put into Atlas.ti for the analysis, starting with coding. Because this research is very explorative, and not a lot of comparative research into the subject has been conducted yet, inductive coding was used. A coding tree was built and designed not on forehand, but during the process of coding itself, which made the base for further analysis. The coding started with descriptive coding, with the first remarkable findings. The coding then continued with deeper values of things found in the published articles. Below the designed coding tree is shown.

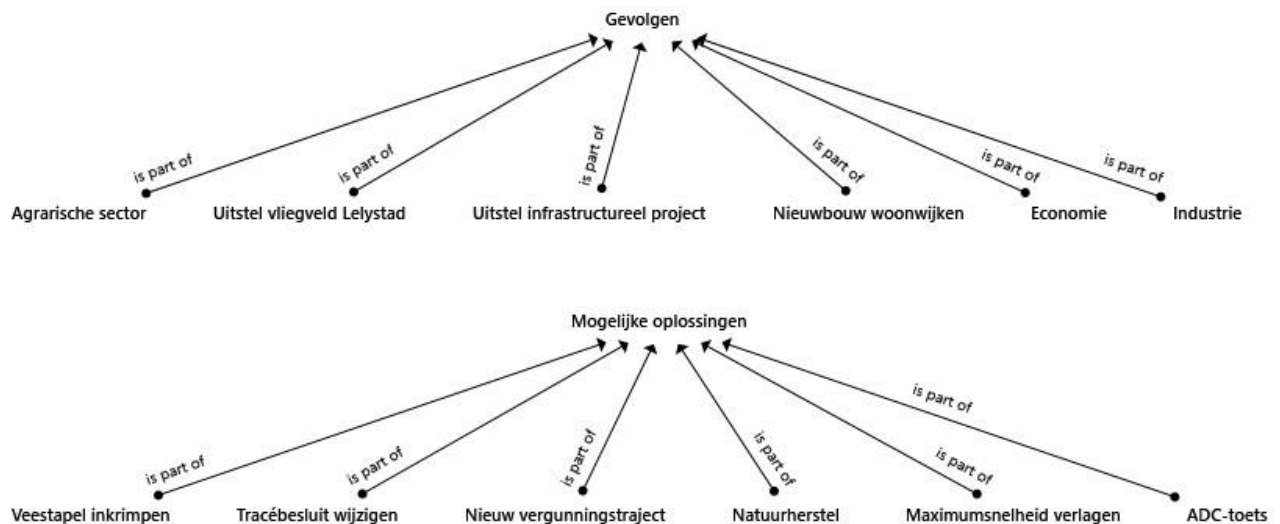


Figure 2: coding tree

When the coding was finished and the coding tree complete, it provides an overall perspective from the Dutch media concerning the subject of the nitrogen emission verdict. Using the gathered information from the articles, the coding and the literature, a discussion and conclusion to the central research question were drawn.

During the research, some ethical considerations need to be taken into account. As all the articles used as the data for the research have already been published, anonymity is not necessary, as it would be with for example expert interviews. The validity, reliability and trustworthiness of the data need to be questioned as well, to ensure that the data is useful for the research.

As for the validity, one of the advantages of using published articles is that the paper or writer has gathered the information and has already checked it before it was published. However, this can also be seen as a disadvantage, since it is not in the own power of the researcher to ensure all collected data is valid.

The reliability and trustworthiness of the data must also be taken into account. The data gathered through the articles in the LexisNexis database can be considered quite reliable, as it has been published and approved by the public already. Also, some used articles had been revised, which points to the fact that the publishers noticed a fault in the

article and cleared the mistake. This is another advantage of using published articles out of the LexisNexis database.

With regards to the positionality of the researcher, one of the most important things to consider when using news articles from LexisNexis is that newspapers usually have a political point of view of their own and write through this opinion as well. In this research, since only three newspapers were used that provided enough in depth articles sharing opinions on the topic, the reliability of the data can be questioned. The opinions of three newspapers do not necessarily represent all points of view on the subject, which is a disadvantage of using LexisNexis and filtering the results, as was done in this research.

Results

As mentioned in the methodology, a total of 26 articles came from the search in the LexisNexis database (see Appendix A). It confines the publication dates between the day of the nitrogen emission verdict and the start of the data collection for this research; 29th of May – 1st of December. Also, it only includes the relevant publications for this research, based on the subject.

The nitrogen emission verdict of the Dutch Council of State entails mostly that it is no longer allowed to use the before used Programma Aanpak Stikstof (PAS, the Dutch programme for reducing nitrogen) as a measurement for providing permits for building projects, so also infrastructure projects. On short term notice, this means that for all projects planned, a new permit must be granted. However, since the verdict it is obligatory to state clearly how the nature will be compensated for the nitrogen emitted during the project. This cannot be stated from one day to another, which results in a delay in a lot of infrastructural projects (Rijksoverheid, 2019). For permits that were already granted and final, the running projects can continue. For all other permits still under consideration and not final yet, the process has to start over again with new rules and a new measurement system for compensating the nitrogen emission (Rijksoverheid, 2019). For specifically infrastructure projects this thus means that almost all planned projects are delayed until further consideration. This affects the economy as well, not only because the jobs to fulfill these projects are no longer available, but also will the economic benefits that will result from the projects be delayed. The articles used from LexisNexis stress the latter, as increasing unemployment rates are bad for the Dutch economy.

There were six main effects of the nitrogen emission verdict mentioned in the media; effects for the agricultural sector, delay of Lelystad Airport, delay of another infrastructure project, building of new houses or districts, effects for the economy and effects for industrial projects. The delay of Lelystad Airport and the overall delay of infrastructure projects were mentioned the most and written about the most. This is as expected, since the list that the Dutch minister of Agriculture, Nature and Food quality Carola Schouten set up contained countless infrastructure projects that would in some way be harmed by the verdict (Rijksoverheid, 2019).

While coding the articles, a pattern could be recognised in the publication date and mentioned possible solutions. The earlier published articles contained mostly consequences and repeating texts on every negative effect of the nitrogen emission verdict. Later on, in more recent articles, more possible solutions are proposed and more is written into the future, rather than looking at the past.

Six possible solutions were mentioned; decrease in livestock, change the record of decision, new permit track, recovery of nature, decrease the maximum speed limit and the ADC-test. As mentioned in the literature by Martos et al. (2016), sustainable urban policies are more needed than ever, so the first new rule has already been debated and decided on; a decrease in the maximum speed limit on highways. One of the articles of NRC Handelsblad (2019) does however mention that traffic was only responsible for 6% of the nitrogen deposition last year, whereas the agricultural sector was responsible for about 46%. Also, the decrease of the speed limit from 130 km p/h to 100 km p/h will only result in a 0,13% decrease of the total Dutch nitrogen emission. Needless to say, this decrease in speed limit is just a very small start of the solution and more sustainable policies.

Also proposed a few times in articles as a possible solution is the ADC-test. It entails that projects can actually continue, if can be proved that there is no other alternative (A), a good reason of public importance (D) and the nature is being compensated (C) (Raad van State, 2019). There are already some projects that were successfully completed because of the ADC-test. Also, the environmental, social and economic benefits are all included in this solution, all part of what is considered to be the main components of sustainable infrastructure (Thomé et al., 2016). The idea of the ADC-test as a measurement tool does differ from the in the literature mentioned Life-Cycle Assessment as a measurement tool for environmental impact (Inyim et al., 2016, Sahely et al., 2005). The LCA focusses on similar projects from the past to predict the future, where the ADC test only emphasizes one particular infrastructural project.

The possible solutions mentioned in the articles may provide environmental, social and economic benefits (Mejía et al., 2015). Remarkably, nothing is mentioned about the implementation of these possible solutions. New rules can be set up, like the ADC-test as new measurement tool, or the recovery of nature. But how the nature will specifically be recovered, at what time pace or from what budget is not yet defined. It might be too early, but this opposes the idea of Dasgupta & Tam (2005), who invented a system where there are already decisions being made in the pre-project planning. Nothing about this has been mentioned in the media, which probably means that no concrete decisions have been made in the Dutch government yet, except for the decrease in the maximum speed limit.

The articles mention some possible solutions that seem feasible and have been discussed a lot already, but right now these are mostly only ideas, as nothing has been decided on yet that could be classified as a significant solution to the problems raised by the nitrogen emission verdict.

Conclusion

Through a LexisNexis analysis, Dutch media publications have been analysed to find out what the nitrogen emission verdict of the Dutch Council of State exactly entails, what the biggest consequences are, with the focus on infrastructure projects, and if there are any possible solutions proposed already.

The nitrogen emission verdict of the Dutch Council of State entails that all non-final project permits are not legal anymore, and the permit process has to start all over again, since the PAS may not be used as a measurement tool in this process anymore. As a result, countless infrastructure projects are harmed and cannot continue, with therefore a delay in the economic benefits.

The six biggest consequences as mentioned in the Dutch media are effects for the agricultural sector, delay of Lelystad Airport, delay of another infrastructure project, building of new houses or districts, effects for the economy and effects for industrial projects. The focus in the media publications lays on the delay of Lelystad Airport and of all the other infrastructure projects in combination with the delay of economic, environmental and social benefits as stated by Mejía et al. (2015).

More recent articles mention possible solutions to the problems raised by the Council of States verdict. The most mentioned possible solutions are the following six: decrease in livestock, change the record of decision, new permit track, recovery of nature, decrease the maximum speed limit and the ADC-test. Meanwhile, the decrease of the maximum speed limit on highways has been implemented, where the other possible solutions have been debated about a lot in Dutch national government, but nothing concrete has been decided on yet.

To answer the main research question “*How does the nitrogen emission verdict of the Dutch Council of State, as reflected in the Dutch media, affect infrastructure projects in the Netherlands?*” the conclusions of the analysis must be combined. The first effect of the nitrogen emission verdict for infrastructure projects is a delay, because the permits cannot be granted through the way they used to be. Next, there are some further effects that rise, such as a delay in economic benefits, nature compensation and the rise of a great political debate about possible solutions. Further, possible solutions are proposed by policymakers and in the media, like a new test, the ADC-test, for granting permits, a decrease in the maximum speed limit on highways and a recovery of the nature. To conclude, the nitrogen emission verdict of the Dutch Council of State affects infrastructure projects in the Netherlands in a negative way, both time- and cost-wise.

Further research on this topic can be conducted on how the debates follow up over the coming years. There can be researched if the initial plans and decisions are successful in decreasing the nitrogen emission and compensating protected nature areas. Also interesting to research is how this subject has come to be such a political sensitive topic, where people are not keen to talk about it.

Reflection

This research has definitely not been boring. Since the decision for an up-to-date subject, it has been in the news almost every day, protests regarding the subject have been going on, countless political debates have taken place and new developments kept coming. As mentioned in the methodology, the original idea was to conduct expert interviews with different stakeholders. With the expert interviews, two infrastructural projects would be compared with regards to the effects of the nitrogen verdict. However, while contacting stakeholders for interviews, it came to light that not everyone was very keen to speaking about the topic, probably afraid to say something that could come against them at a later point in the political debate. Only one expert interview was conducted, and the information gained from this was so little, that another way to conduct this research needed to be found. This was the biggest hitch during the research. The introduction, theoretical framework and methodology needed to be revised, but overall the revision was handled well and the new form of research through LexisNexis was easily understood.

The schedule made on forehand for the research was good to keep up with; there was enough time to reach the deadlines and be satisfied with the result. For the next time, it might be easier or slightly less risky to research a subject that is not as accurate, so the risk of too much political involvement is minimized.

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Appendix A

Title	Publication date	Paper	Words
Vliegveld minister: opening Lelystad Airport volgend jaar 'niet eenvoudig'	13 juni 2019	NRC Handelsblad	132
Kritische uitspraak over stikstof ontregelt infrastructuurplannen	13 juni 2019	FD.nl	734
Als de Raad van State het wil, staat Max Verstappen stil	14 juni 2019	De Volkskrant.nl	670
De moeizame weg naar opening van Lelystad Airport	15 juni 2019	NRC Handelsblad	1371
Politiek Den Haag in de greep van stikstof	20 juni 2019	FD.nl	767
Strenger stikstofbeleid voor de natuur; wat betekent dat voor De Peel en Amelisweerd?	20 juni 2019	De Volkskrant.nl	1761
Opening vliegveld Lelystad voor derde maal uitgesteld	03 juli 2019	NRC Handelsblad	413
Een overwinning voor de natuur: Raad van State vernietigt plan voor verbreding A27 en A12	17 juli 2019	De Volkskrant.nl	447
Streep door verbreding snelweg Amelisweerd na stikstofuitspraak	17 juli 2019	FD.nl	636
Geen verbreding snelwegen A12 en A27 rond Utrecht	17 juli 2019	NRC Handelsblad	420
Onduidelijk stikstofbeleid leidt tot stilleggen steeds meer bouwprojecten	18 juli 2019	De Volkskrant.nl	759
Kiezen tussen groei en groen wordt onontkombaar: 'Eigenlijk hebben we een ramp nodig'	19 juli 2019	De Volkskrant.nl	1052
Plots zijn al die bouwprojecten onzeker; stikstof-uitspraak	20 juli 2019	NRC Handelsblad	979
Wat beweegt de man die met zijn procedures tegen het stikstofbeleid Nederland 'op slot heeft gezet'?	16 augustus 2019	De Volkskrant.nl	793
Natuurbescherming Stikstofbesluit Raad van State drukt ook snelheid op autoweg	03 september 2019	NRC Handelsblad	327
Meer verzuring en fijnstof, en koolmezen met gebroken pootjes	25 september 2019	NRC Handelsblad	709
Adviseur Remkes: 'Stikstofprobleem verdraagt geen pappen en nathouden'	25 september 2019	De Volkskrant.nl	758
Veluwe in zicht? Remmen maar	01 oktober 2019	NRC Handelsblad	765
Kabinet schiet bouwbedrijven in nood te hulp	29 oktober 2019	De Volkskrant.nl	450
Kabinet presenteert noodwet in crisis rond stikstof	13 november 2019	FD.nl	449
100 km per uur én offers in natuur	13 november 2019	NRC Handelsblad	797
'100 km per uur is schoner, veiliger	13 november 2019	NRC Handelsblad	1106

én goedkoper': stikstofmaatregelen				
Een bijna-crisis die eindigt bij 100 km/u; stikstof 100 rijden wordt even wennen		16 november 2019	NRC Handelsblad	2033
Stikstofplan laat grond-, weg- en waterbouwers in de kou staan		18 november 2019	FD.nl	832
Stikstofcrisis legt grote infraprojecten voor jaren lam		20 november 2019	FD.nl	667
Stikstof treft spoor: stikstof dendert door		22 november 2019	NRC Handelsblad	651
Total papers	26			
NRC Handelsblad	12			
Volkskrant.nl	8			
FD.nl	6			