



MASTER THESIS

PLANNING HIGHWAYS: RIGHT OR JUST?

An explorative study into the relationship between socioeconomic status of neighbourhoods and the planning of main road infrastructure projects in the Netherlands.

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Preface

Dear reader,

In front of you lies my master thesis. This thesis forms the final step towards a master's degree in Socio-Spatial Planning at the University of Groningen. This thesis formed the perfect intersection between my bachelor's degree in Spatial Planning & Design with my interest in infrastructure and the master's degree Socio-Spatial Planning focussing on the human side of planning. This made that I worked on the thesis with joy.

This thesis is also the finish of six years as a student in Groningen. However, the final days of student life had looked different than I imagined when I started writing this thesis. Due to the Coronavirus, we live in uncertain times. The last few months, the Netherlands was in an intelligent lockdown. So instead of writing my thesis at the university library or the offices of Rijkswaterstaat I mostly wrote at home. This was not always easy and subsequently all interviews had to take place digitally. To be fair, this saved me a lot of traveling time from Groningen to the Randstad, but it prevented me from experiencing the enthusiasm of the interviewees concerning their job, walking around construction sites and getting a better grip on the projects.

Despite the unfamiliar circumstances I was able to complete this thesis. For this end, I would like to thank the people that made this study possible. First of all, I want to thank my supervisor from the University of Groningen, Jos Arts, for being critical and always giving good suggestions, but most prominently his ever-lasting enthusiasm. Secondly, I want to thank all the interviewees for their input. Without their collaboration, this study would not have been possible. On top of that, I would like to thank everyone who helped to arrange interviews or helped me in shaping the research process.

I wrote this thesis as part of an internship at Rijkswaterstaat. I would like to thank my colleagues at the department Ruimte, Economie & MIRT for their interest in my research and their helpful suggestions. Interesting conversations helped me to get a better understanding of the topic and made me look at it from different angles. This internship also gave me insight into the goings of a big organisation like Rijkswaterstaat and everyday planning practice. I specifically would like to thank my supervisor from Rijkswaterstaat, Hans de Vries, for his input and suggestions that improved this thesis.

Additionally, I would like to thank my family and friends for their support, interest and patience during the writing process.

For now, enjoy reading.

Gisa Vos

Groningen, June 2020

Abstract

The construction of new roads and the upgrading of existing road infrastructure in the Netherlands is often heavily debated and a fine balance between different interests. It seems impossible to find an optimal solution for all. To incorporate resident's opinions and heighten the support for a project, stakeholder involvement is of increasing importance. According to the National Ombudsman (2019), citizens are insufficiently included early in the planning process and do not feel involved. There is a gap between the implementation of formal stakeholder consultation and how residents experience it. Also, many infrastructure projects face delays and cost overruns, mostly before construction even started. Additionally, social inequality in the Netherlands seems to be growing in certain aspects (Van den Brakel & Pouwels-Urlings, 2019). People with a higher income or education have a better life situation than lower educated people (Wennekers et al., 2019). The process of public involvement may not be as inclusive as hoped, highly educated citizens would be more prominent in the participation process. The benefits and burdens of a project may not always be distributed evenly, more fundamentally, how 'just' is such distribution? This is essential, as in social justice theory it is argued that participation is key for a just city (a.o. Harvey, 2003; Lefebvre, 1996; Marcuse et al., 2009). This study explores via quantitative and qualitative research methods the relationship between socioeconomic status of local residents and the planning of road infrastructure projects and investigates how stakeholder management and participation processes may affect this relationship.

It was found that a direct influence of socioeconomic status on the planning of Dutch road infrastructure projects could not be shown based on both the quantitative and qualitative research. It was not shown that local residents are able to substantially delay a project, cause cost overruns or cause the abolishment of a project. Yet, socioeconomic status plays a role in different ways in the planning process. Residents with a higher socioeconomic status are, among others, more likely to be well informed (on their legal rights); have a better network with short lines to local politics; are more likely to have an interest in the project enhancing participation; are more assertive and empowered which changes the discussion and can set the agenda of a project. Sometimes this leads to small changes in project scope, better project integration or small delays (in weeks or months). Based on the principles of social justice, residents with a lower socioeconomic status should not be disadvantaged by this. A just outcome should be ensured for all residents, especially because infrastructure projects influence local living environments on the long term. This is not yet specified in the Code of Societal Participation. To mitigate the influence of socioeconomic status, stakeholder management and participation should ensure the right of every resident to participate. To ensure stakeholder involvement, fairness, communication and inclusiveness are key.

Key words: road infrastructure projects, social justice, stakeholder management, stakeholder participation, socioeconomic status

Samenvatting

De aanleg van nieuwe wegen en het opwaarderen van bestaande infrastructuur in Nederland is vaak onderhevig aan een hevig debat. Het is een balans tussen de verschillende belangen van stakeholders waarin het bijna onmogelijk is een oplossing te vinden die ideaal is voor iedereen. Participatie in infrastructuurprojecten is van toenemend belang om de mening van bewoners mee te nemen en draagvlak voor een project te vergroten. Volgens de Nationale Ombudsman (2019) worden bewoners onvoldoende voortijdig gehoord en betrokken in de planning van infrastructuurprojecten. Er is een mismatch tussen de implementatie van participatie en hoe de bewoners deze ervaren. Daarnaast hebben veel infrastructuurprojecten te maken met vertragingen en budgetoverschrijding, vaak al voordat het project in aanleg is gegaan. De sociale ongelijkheid in Nederland lijkt te groeien binnen bepaalde aspecten (Van den Brakel & Pouwels-Urlings, 2019). Ook hebben mensen met een hoger inkomen of opleidingsniveau een betere uitgangspositie en levensomstandigheden dan lageropgeleiden (Wennekers et al., 2019). Participatie bij grote infrastructuurprojecten blijkt veelal niet zo inclusief als gedacht. Hogeropgeleiden zouden vaker participeren en meer van zich laten horen. De baten en lasten als gevolg van een project zijn wellicht niet altijd gelijkmatig verdeeld. Op een fundamenteel niveau kan de vraag gesteld worden, hoe rechtvaardig zo'n verdeling is? Dit is belangrijk omdat binnen verschillende 'social justice' theorieën participatie als essentieel wordt gezien voor een rechtvaardige stad en leefomgeving (o.a. Harvey, 2003; Lefebvre, 1996; Marcuse et al., 2009). Door middel van kwantitatieve en kwalitatieve onderzoeksmethoden exploreert dit onderzoek de relatie tussen sociaaleconomische status van lokale bewoners en de planning van infrastructuurprojecten en hoe participatie en omgevingsmanagement deze relatie beïnvloedt.

Volgend uit de kwantitatieve en kwalitatieve resultaten is in dit onderzoek geen directe invloed aangetoond van sociaaleconomische status van inwoners op de planning van Nederlandse infrastructuurprojecten. De resultaten geven ook aan dat het niet aannemelijk is dat omwonenden een project substantieel kunnen vertragen, budgetoverschrijdingen kunnen veroorzaken of ervoor kunnen zorgen dat een project niet doorgaat. Desalniettemin speelt sociaaleconomische status op verschillende manieren een rol binnen planprocessen. Bewoners met een hogere sociaaleconomische status zijn, onder andere, beter geïnformeerd (over hun rechten); hebben een beter netwerk met korte lijntjes naar de lokale politiek; zijn assertiever en mondiger, dit verandert de discussie of kan de agenda bepalen van een project. Soms leidt dit tot kleine veranderingen in de scope van een project, betere inpassing van een project of kleine vertragingen (in weken of maanden). Vanuit het justice perspectief, zoals dat in de literatuur wordt besproken, zouden inwoners met een lagere sociaaleconomische status hier niet door benadeeld moeten worden. Een rechtvaardige uitkomst na de aanleg van een infrastructuurproject moet gegarandeerd worden voor alle bewoners, met name omdat infrastructuurprojecten de lokale leefomstandigheden beïnvloeden op de lange termijn. Dit is nog geen onderdeel van het huidige beleid rond de aanleg van infrastructuurprojecten. Om de invloed van sociaaleconomische status te beperken moet het recht van elke bewoner om te participeren behartigd worden. Om een rechtvaardig participatieproces te garanderen zijn eerlijkheid, communicatie en inclusiviteit van belang.

Sleutelwoorden: weginfrastructuurprojecten, social justice, omgevingsmanagement, participatie, sociaaleconomische status

Table of contents

Preface.....	2
Abstract	3
Samenvatting.....	4
Table of contents.....	5
Figures and tables	8
List of abbreviations	9
1. Introduction.....	10
1.1 Background and context	10
1.2 Problem definition and research objective	11
1.3 Research questions	12
1.4 Scientific relevance.....	13
1.5 Societal relevance.....	14
1.6 Reader guide	14
2. Theoretical framework.....	15
2.1 Justice in planning	15
2.1.1 Social justice	15
2.1.2 Justice and the participation process.....	16
2.2 Citizen participation and public resistance	17
2.2.1 Stakeholder management and citizen participation	17
2.2.2 Participation in a Dutch context.....	19
2.2.3 (Subjective) experience of effects.....	19
2.2.4 Citizen engagement.....	20
2.2.5 Public resistance.....	20
2.3 (Dutch) Planning of road infrastructure projects	21
2.3.1 Planning of road infrastructure	21
2.3.2 Time Delays, cost overruns and scope change in road infrastructure projects	21
2.4 Dutch planning practice	23
2.4.1 Planning procedures.....	23
2.4.2 Legal frame nuisance protection.....	25
2.4.3 Integral planning	25
2.5 Expectations and conceptual model	26
2.5.1 Expectations	26

2.5.2 Conceptual model	27
2.6 Resume: answering theoretical research questions	27
2.6.1 Social justice, road infrastructure planning and how it works out in participation	27
2.6.2 Reasons for infrastructure delays, cost overruns and scope change and how participation deals with it	28
3. Methodology	30
3.1 Literature research	30
3.2 Mixed methods.....	30
3.3 Sample selection, data selection and indicators	31
3.3.1 Sample selection.....	31
3.4 Quantitative analysis	34
3.4.1 MIRT document study	35
3.4.2 Indicators	35
3.4.3 Statistical analysis.....	36
3.4.4 Spatial analysis	36
3.5 Qualitative analysis.....	37
3.5.1 Semi-structured interviews	37
3.5.2 Processing of the interviews	37
3.5.3 Selection of interviewees	37
3.5.4 Coding.....	38
3.6 Ethical considerations	39
4. Results - Little evidence or something else might be at hand?.....	40
4.1 Quantitative findings	40
4.1.1 Statistical analysis.....	40
4.1.2 Spatial analysis	43
4.1.3 The relationship between socioeconomic status and project planning	44
4.2 Qualitative findings	45
4.2.1 Studied projects.....	46
4.2.2 Time, money and scope change	51
4.2.3 Role of socioeconomic status on the participation and planning process.....	51
4.2.4 Public response	52
4.2.5 Stakeholder participation	55
4.2.6 (Just) stakeholder management as a mitigating factor.....	56
4.3 Relating justice and participation.....	61
4.3.1 Qualitative data analysis	61

4.3.2 Justice in infrastructure project and the influence of participation and stakeholder management	62
4.3.3 Just participation and stakeholder management.....	62
5. Conclusion, discussion and recommendations	65
5.1 Conclusion	65
5.2 Discussion	66
5.2.1 Interpreting the results	67
5.2.2 Strengths and limitations	69
5.2.3 Implications	70
5.3 Suggestions for follow-up research.....	71
5.4 Recommendations	72
5.5 Reflection	74
Literature.....	76
Appendices	91
Appendix 1: Basic interview guide	91
Appendix 2: Codebook	93

Figures and tables

Figure 1. Research questions model	12
Figure 2 The ladder of participation (based on Arnstein, 1969)	18
Figure 3. MIRT-procedure	24
Figure 4. Conceptual model	27
Figure 5. Quantitative project sample.....	33
Figure 6. Qualitative project sample	34
Figure 7 Overview map socioeconomic status and project planning	44
Figure 8. Project A9 Diversion Badhoevedorp	46
Figure 9. Project A28/A1 Junction Hoevelaken	47
Figure 10. Project N18 Varsseveld - Enschede	48
Figure 11. Project Blankenburgverbinding.....	49
Figure 12. Project N35 Zwolle - Wijthmen	50
Table 1. Quantitative project sample.....	32
Table 2. Overview interviewees	38
Table 3. Regression results.....	42

List of abbreviations

CBA	Cost-benefit analysis
CVA	Citizen Values Assessment
EIA	Environmental Impact Assessment
MER	Milieu-effectrapport
M.e.r.	Milieu-effectrapportage
MIRT	Long-range programme infrastructure, spatial development and transport
NIMBY	Not-In-My-Backyard
NWB	Nationaal Wegenbestand (Dutch national road database)
SCBA	Social Cost Benefit Analysis
SES	Socioeconomic status
SIA	Social Impact Assessment
Wro	Spatial Planning Act

1. Introduction

1.1 Background and context

The construction of new roads and the upgrading of existing road infrastructure in the Netherlands is oftentimes heavily debated. Increasing nuisance and the chopping of trees to make room for asphalt sometimes leads to fierce public opposition. The A27 near Utrecht for example has a long history of protest. In the 1970s and 1980s, the construction of the A27 through the wooded estate Amelisweerd induced demonstrations and even led to the deployment of riot control to calm down the crowd. Nowadays, the A27 again leads to controversies, as there are plans to broaden the road. Many citizens protested to avoid the trees being chopped and conserve the estate (Oostveen, 2019; RTL Nieuws, 2018; Volkskrant 2013). Another example is the construction of the new highway Blankenburgverbinding near Rotterdam, passing through a nature reserve. Citizens protested against this new road and two airplanes with their protest texts flew over the construction site when it was opened by the minister in 2018 (Oosterom, 2018; NOS, 2018). On top of that, projects like the Rijnlandroute and A4 Delft – Schiedam also dealt with societal resistance (Dirks, 2015; Ramesar, 2012). These examples show that the (re)construction of road infrastructure is a fine balance between different interests like accessibility, economy and robustness of the network versus environmental protection and nuisance.

To incorporate people's opinions and heighten the support for a project, public involvement is of increasing importance in the planning process. However, the participation process itself is not always executed as is in theory explained or defined in policy guidelines, like the Code of Societal Participation (Ministerie van Infrastructuur & Waterstaat, 2014). According to the National Ombudsman (2019), the government is insufficiently capable to include citizens early in the planning process and make them feel involved in a project. When citizens do not feel sufficiently involved early in the process, this influences the outcomes later in the participation process. However, much inclusion from the beginning of the process onwards is not a guarantee for success. Often it is unclear for citizens how far their influence reaches. On top of that, citizens sometimes experience that civil servants do not have an open attitude considering participation, which lowers the experienced involvement of citizens (Nationale Ombudsman, 2019). There is a gap between the implementation of formal stakeholder consultation participation and how the participants experience it. This is important as the participation process influences citizens' experience and satisfaction with a project's outcomes.

On top of that, many infrastructure projects face delays and cost overruns. Currently, many Dutch infrastructure projects are delayed due to ecological and nature protection constraints as nature conservation is strongly embedded in Dutch laws and regulations (see section 2.4.2), a 'nitrogen crisis' (van Dongen & Voermans, 2019; Speksnijder, 2019). However, the construction of infrastructure has never been easy in densely populated countries such as the Netherlands. In 2007 a special committee was introduced by the Minister of Traffic and Water Management to investigate the reasons for the big delays of infrastructure projects and to come up with solutions to speed up the process, including carefully taking public interests into consideration and public participation (Elverding, et al., 2008). This report by the 'Commissie Elverding' led to different recommendations to improve and speed up the planning process. Still, infrastructure projects suffer big delays and cost overruns. In 2019 the construction of the biggest sea lock of the world in IJmuiden experienced big cost overruns and delays (Houtekamer, 2019), also the reconstruction of the Zuidasdok in Amsterdam was delayed before the construction had started (Van den Eerenbeemt, 2019).

At the same time, infrastructure projects can lead to controversies, even up to a political level. There are many issues at stake in a planning process, ranging from accessibility to nature protection and health. The Gaasperdammerweg for instance, is a highly debated road in the Netherlands, disputed since the 1960s. In the road network, there has been a missing link between the highways A6 and A9

near Amsterdam. The Gaasperdammerweg through Amsterdam Southeast functions as this link, while this road was never meant to be a highway. With increasing traffic at the end of the 1900s, a solution was needed to fill the gap. Politicians wanted to build the missing link through the nature reserve Naardermeer. By fierce opposition from nature protection organisations and residents from the nearby wealthy Gooi area, this road was not built. Instead, it was decided that the Gaasperdammerweg, passing through the less wealthy Amsterdam Southeast, should be upgraded. Now the residents of Amsterdam Southeast deal with the accompanying nuisance (Bouma, 2006; ten Hoove, 2006; Wilman, 2006). This case shows that the planning of infrastructure projects is a delicate balance. Different actors have different stakes and it seems impossible to find an optimal solution for all. As well, it displays that the benefits and burdens of a project may not always be distributed evenly. And more fundamentally, how 'just' is such distribution?

In addition to this, social inequality in the Netherlands seems to be growing in certain aspects (Van den Brakel & Pouwels-Urlings, 2019; Wennekers et al., 2019), which seems to also have relationships with infrastructure planning. For example, Lelystad Airport, in the planning process citizens felt insufficiently heard, which might enhance a gap between government and its citizenry, as emphasized by the Ombudsman (Nationale Ombudsman, 2019). There is especially a difference in income and education. People with higher education and a higher income have a better life situation than lower educated people (Wennekers et al., 2019). Also, people with higher education and income are healthier and live longer (van Soest, 2019), so lower-income groups may be hit harder by the negative externalities of infrastructure projects (see section 2.2.4). On top of that, there are indications that weak neighbourhoods increasingly suffer negative effects and lower liveability in the Netherlands (Voogt & Rutten, 2020). Transport infrastructure has an important function in the provision of accessibility. Accessibility to jobs, facilities and the meeting of other people is an important factor in socioeconomic development (Rubin, 2016; Tillema, 2019). At the same time, infrastructure can function as a barrier, a separation between rich and poor, also in the Netherlands (Cornelissen, n.d.; Arts, 2007). There are also indications that the participation process itself is not as inclusive as hoped. Highly educated citizens would be most prominent in the participation process, while the lower-educated are less actively involved (NOS, 2016; Woltjer, 2000). The preceding examples show that the participation process in road infrastructure projects may not be as inclusive and fair as aimed for in different policy documents. One explanation could be the differences in the socioeconomic status of residents, with factors like income and education.

To sum up, road infrastructure projects often deal with societal resistance and time and budget overruns. Stakeholder management and thus the participation process is of increasing importance to gain public support for a project and ensures just participation of all stakeholders. However, there is a mismatch between the participation process and the experience of citizens. It is important to look at this mismatch considering growing social inequalities, as a just participation process could smoothen and speed up the planning process.

This chapter introduces the main focus of this study. The previous section illustrated the background and context. Subsequently, section 1.2 lays out the problem definition and research objective. Section 1.3 specifies the primary research question and sub-questions. Section 1.4 and 1.5 outline the scientific and societal relevance of the study. The chapter ends with a reader guide (section 1.6).

1.2 Problem definition and research objective

There are many studies on delays, cost overruns and scope of infrastructure projects. Time, money and the scope of an infrastructure project could be an indicator of the participation process, which is influenced by the socioeconomic status of citizens. The relationship between residential satisfaction and living near neighbourhoods was investigated much. However, the relationship between

infrastructure planning and neighbourhood characteristics, like socioeconomic status, is little investigated (Hamersma, 2017).

Possibly, there is a relationship between socioeconomic status of local residents and the planning of road infrastructure projects. Stakeholder management and participation could play a key role in this relation. An insufficiently inclusive or fair participation process and stakeholder management could negatively impact lower-income groups and lower educated. These groups could experience relatively more negative effects of infrastructure projects compared to their wealthier counterparts, for example nuisance impacting health and a barrier function of infrastructure. Also, these groups are more vulnerable to eviction in rental houses and have fewer resources to make use of judicial power.

This study aims to explore the relationship between socioeconomic status of local residents and the planning of road infrastructure projects and how this may be expressed in road integration measures. To investigate how stakeholder management and participation processes may affect this relationship. To make a value judgement on the outcomes of the exploration in a social justice perspective. To formulate recommendations on how to make the participation process, stakeholder management and its outcomes more just.

1.3 Research questions

The primary research question of this study is as follows: How does the socioeconomic status of local residents relate to the planning of national road infrastructure projects in the Netherlands and what does this mean for participation?

The primary research question is accompanied by the following sub-questions:

1. How does social justice relate to the planning of road infrastructure projects and how is this ensured in the participation process?
2. What are reasons for infrastructure delays, cost overruns and quality changes in road infrastructure projects and how is dealt with this in the participation process?
3. How does the socioeconomic status of neighbourhoods relate to the planning of road infrastructure projects?
4. How just are road infrastructure projects and how may participation processes and stakeholder management influence this?
5. Which factors are important in the participation process and stakeholder management in relation to social justice?

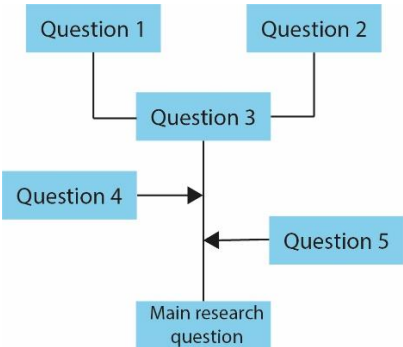


Figure 1. Research questions model

Figure 1 shows how the research questions are interlinked and lead to the main research question. The sub-questions are related to each other. Questions 1 and 2 are both theoretical questions. Together questions 1 and 2 are synthesized in empirical question 3, which is clarified by the

quantitative part of the research. Then, questions 4 and 5 are empirical, follow-up questions on the outcomes of question 3. Questions 4 and 5 are answered by the analysis of the interviews with, among others, project and stakeholder managers. This gives more insight and context to the answers on question 3.

1.4 Scientific relevance

The topic of social justice has a long history and can be viewed from different angles and has different subthemes. In this study, social justice is considered as it is explained by Beyazit (2011, p.117) “the just distribution of what is owned, gained and lost by the members of a society”. Urban justice most closely touches the topic of this study. This field within social justice arose in Western countries as a reaction to the state-sponsored programmes for the construction of highways and urban regeneration, which destroyed the housing and communities of lower-income groups (Fainstein, 2014). The normative lens of social justice will be used to argue to what extent the possible relationship between socioeconomic status and the planning of road infrastructure in the Netherlands is just.

Citizen participation is a way to actively address the concerns of a project’s relevant stakeholders (André et al., 2006). Stakeholder participation is, according to Li et al. (2012), a means to make the decision-making process more open and transparent and it supposedly improves the long-term viability of a project, benefiting the community. Arnstein (1969) argues that via public participation the ‘have-not citizens’ are deliberately included in the future. On top of that, the concerning stakeholders have the right to be pro-actively and early involved in proposals that have a possible high influence on the lives and livelihoods. Most important, stakeholders that are positively or negatively affected by a project should preferably be involved (André et al., 2006; Lizarralde, 2011). When the public is effectively involved, a project is more likely to be successful due to: reduced project costs and time; more innovation because of collective community wisdom; acceptance of the community, increasing the legitimacy of government decisions (Li et al., 2012). Boonstra & Boelens (2011) state that stakeholder involvement increases the embeddedness of a project in the local community, improving the support and commitment for such projects. When the impacts of a project on nature and communities are not properly addressed, or when groups are left out of the process or experience limited influence, they are likely to protest. These protests can take many forms (Hanna et al., 2016).

The underlying assumption is that well-executed stakeholder management and a high amount of citizen participation have a dampening effect on the number of protests concerning infrastructure projects (Hanna et al., 2016), and thus is a possible result of socioeconomic status, as projects are more embedded in the local community.

On top of that, big infrastructure projects often cope with big cost overruns and delays (Flyvbjerg & Flyvbjerg, 2007). The causes of these delays and cost overruns have been widely studied (Cantarelli et al., 2013; Flyvbjerg, 2007; Singh, 2010). Flyvberg (2007) and Cantarelli et al. (2010) argue that different explanations can be distinguished: technical explanations, psychological explanations and political-economic explanations. However, social explanations do not appear in this picture. There is a knowledge gap in the possible explanation of social factors, like socioeconomic status of surrounding residents, for infrastructure delays and cost overruns.

Big infrastructure projects are inherently politically sensitive and concern a diverse group of stakeholders, which all have different, often opposing interests, needs and expectations. This makes the decision-making process more complex and riskier. Different authors note the importance of stakeholder management to incorporate stakeholders’ views to meet their expectations, which reinforces the process and enhances the final value of a project and its implementation (Bourne and Walker, 2005; Cleland, 1995; Erkul et al., 2016; Olander, 2006; Vinten, 2000)

Participation processes and stakeholder management are often researched (Arnstein, 1969; Bourne & Walker, 2005; Erkul et al., 2016; Hamersma, 2017; Hanna et al., 2016; Li et al., 2013; Olander, 2006). There is smaller knowledge of the selectivity of these processes. Also, there are many studies on infrastructure cost overruns and delays as well as the limited quality of infrastructure developed. However, the relation of road infrastructure planning with neighbourhood characteristics in a social justice perspective is little investigated. This study provides a first insight into this relationship. Since there is little prior knowledge on the topic, this study has an explorative purpose.

1.5 Societal relevance

The societal relevance of this study relates to the exploration on the relationship between socioeconomic status and the planning of road infrastructure projects. It should be considered what the outcome means for the planning of main road infrastructure projects in general and the outcomes for local communities in particular. Especially, concerning the justice of stakeholder management and the participation process in main road infrastructure projects. This study could thus show the importance of specific issues and set the agenda. Especially, as for example, road infrastructure can negatively impact health due to noise and air pollution (Carrier et al., 2016). This relates to social and urban justice on a higher level.

In 2022 it is expected that the Environment and Planning Act (Omgevingswet) will take effect. This act aims to simplify and merge rules for spatial development to align, among others, different plans in spatial planning (Ministerie van Infrastructuur & Milieu, n.d.). Most importantly, the Environment and Planning Act links to this research, as from its implementation onwards, stakeholder participation will be mandatory. Public involvement should take place in an early stage for all stakeholders (citizens, companies and civil society organizations), as was also argued for the implementation of SIA in the planning process by De Groot (2017). However, the Environment and Planning act does not specify the process of formal stakeholder consultation (Kistenkas et al., 2018; Klostermann et al., 2019). This study can show how the participation process influences the planning of road infrastructure in current planning practice. The outcomes, especially concerning justice, are relevant as the Environment and Planning Act does not specify formal consultation. In the Environment and Planning Act, all stakeholders should be evenly incorporated. Thus, it is important to evenly involve local residents with different socioeconomic status (education and income) and make their voices be heard. This could ensure a fair or just planning process and outcome, which itself is not specified in laws and regulations. The outcomes could lead to recommendations on how to make the participation process and its outcomes more just and how this would work out in the Environment and Planning Act.

1.6 Reader guide

Thus far, chapter 1 introduced the relevant issues and context underlying this thesis. Also, the research question and approach are outlined. Chapter 2 sheds a light on the theoretical debate concerning the subjects and themes of this study, providing a theoretical framework. In chapter 3 the methodology of this research will be presented. Chapter 4 explores the outcomes of the quantitative and qualitative analyses. In chapter 5 the forthcoming conclusions, discussion, suggestions for follow-up research and recommendations based on the previous chapters are discussed. Finally, the consulted literary sources and appendices can be found.

2. Theoretical framework

In this chapter, different concepts will be explained which will together form the theoretical foundation of this study. The aim is to get a grip on the different concepts that underlie the study. This chapter shapes how the connection between socioeconomic status of residents and the planning of road infrastructure projects is approached. In this way, the study is narrowed down and given a specific theoretical direction. The concepts that will be discussed are among others: social justice in planning (section 2.1), public resistance and participation (2.2), planning of road infrastructure (2.3) and Dutch planning practice (2.4). The chapter finishes with the project expectations and conceptual model (2.5).

2.1 Justice in planning

When talking about justice in planning, it is important to understand what justice holds and how it is understood in this research. In this way, it is important to distinguish the difference with justice-related terms like 'equality', 'equity' and 'fairness'. Equality holds that each individual is treated equally, for example, everyone receives the same amount of a good. Equity is about fairness to guarantee that every individual gets the same opportunities. (Levitan, 2015). Fairness means that every individual receives what they are due. In this research, justice is understood as the moral permissibility of benefits and burdens or social structures (Vallentyne, 2007). In this sense, equity and equality can promote fairness and justice.

2.1.1 Social justice

The topic of social justice has a long history and can be viewed from different angles and has different subthemes. In this study, social justice is considered as "the just distribution of what is owned, gained and lost by the members of a society" (Beyazit, 2011, p.117). In the scope of this research, this relates to the gains and losses associated with the construction of road infrastructure, like increased accessibility and economic benefits, or health outcomes and noise nuisance (see section 1.5). Campbell (2016) argues that planners should not only aim for a green and growing city, but also a just city. Different aims lead to different kinds of planning.

Spatial justice is a subfield within the social justice literature. Spatial (in)justice emphasizes the spatial or geographic aspects of justice. "Spatial (in)justice can be seen as both outcome and process, as geographies or distributional patterns that are in themselves just/ unjust and as the processes that produce these outcomes" (Soja, 2009, p.4). It is about the just distribution of socially valued resources (e.g. education) and the opportunities to use those resources in space (Soja, 2010).

Transport justice is a subfield within the social justice literature that focuses on the people using, or failing to use, the transport system. It is argued that every citizen should be provided with adequate transport, among others because low levels of accessibility limit people's ability to participate in activities (Martens, 2017). The scope of this study does not concern the accessibility of the influenced neighbourhoods. However, the influence of accessibility projects (e.g. big road infrastructure projects) does influence neighbourhoods, like the level of satisfaction due to enhanced accessibility (Hamersma, 2017).

Environmental justice as a subfield could, among others, be defined as a principle: "all people and communities are entitled to equal protection of environmental and public health laws and regulations" (Bullard, 1996, p.495). Nowadays, environmental justice is applied to a range of environmental concerns and social distinctions (like poverty, age or gender) in different political contexts (Walker & Burningham, 2011).

Even though both spatial, transport and environmental justice touch upon the subject of this study, urban justice relates to it most as it dives deeper into the effects of policies and planning processes on neighbourhoods. According to Fainstein (2014), urban justice arose in Western countries as a reaction

to the state-sponsored programmes for the construction of highways and urban regeneration, which destroyed the housing and communities of lower-income groups. Later on, this shifted to “the identification of economic development approaches subsidizing wealthy property developers and to the transformation of neighbourhoods achieved through gentrification” (Fainstein, 2014, p.4). Fainstein argues that democracy, diversity and equity are three principles that underlie urban justice. Others argue that urban justice is a means to offer equal opportunities to marginal groups and to integrate remote communities more into the political decision-making process. Alfasi and Fenster (2014) argue that an unjust formation of the built environment influences people in their abilities.

Different authors promote participation as being essential for a just city. Marcuse et al. (2009) argue that citizens should have the right to participate in the creation of a city. He argues in line with Lefebvre’s (1996) right to the city argument that citizens should have a right to participate in the social and political production of the city. Purcell (2009) views this in a global perspective, arguing for citizens to have an appropriate urban space, created by participation in the decision-making process at different levels. A just city also incorporates environmental themes like noise, waste and air pollution (Gössling, 2016). Harvey (2003) argues that citizens should have the right to change a city in a way they desire, implicating difficulties for planners. Creating a qualitatively different urban sociality is a human right, a sphere of active, democratic citizen participation.

2.1.2 Justice and the participation process

In section 2.1 the different subfields of justice were laid out based on literature, concerning different justice principles that relate to the city and the influence of infrastructure projects on citizens and neighbourhoods. In meeting the different justice principles, the participation process in the planning of infrastructure projects plays a role. The way the government ensures stakeholder involvement is not directly related to theories of social justice. However, the way formal stakeholder consultation is designed impacts its level of justice.

Just participation holds being able to voice opinions and substantive influence. If this is not sufficiently executed, local residents can feel as if they have no choice (Smits & Van der Kroon, 2017). There are indications that people’s perspectives are not sufficiently taken into account. Participants feel as if their submitted opinions (zienswijzen) barely lead to real changes in a plan. However, there are no numbers to prove this (PBL, 2019). In relation to wind energy, Akerboom (2018) adds, that participation in wind energy projects is often focused on technical details like height or number of windmills. While at the same time, local residents would like to discuss the motivation of the project itself. This relates to the fairness of the outcomes for different projects. Infrastructure projects can negatively benefit citizens, for example by increased nuisance or visual impact of their surroundings. This can lead to resistance (see section 2.2.5).

The participation process might heighten support for a project (Breukers & Wolsink, 2007) and limit resistance. The way citizens respond to a project is influenced by subjective experience (see section 2.2.3), but is also influenced by the fairness of outcomes. In England for example, locals felt that they were double hit by the siting of windmills. First, they had to deal with heavy industry near their homes and on top of that windmills were sited near that heavy industry. The locals felt they had to sacrifice their local landscape again for the needs of the country (Cowell, 2010). In the Netherlands, the siting of windmills by the government leads to societal unrest as well (Smits & Van der Kroon, 2017). Policymakers and energy companies are often surprised by this resistance (Wolsink, 2017). Gross (2007) showed that perception of justice indicates the amount of conflict on a project. A project’s content can be bad, but if the project is considered to be transparent and fair, the project can continue. Fairness of a project is, among others, related to the amount of participation in the decision-making process. But for participation to succeed, it is important that the participants are not considered to be NIMBYs or opportunistic. Which also depends on the local social capital and circumstances and the

connectivity with the area (Anderson, 2013; Jolivet & Heiskanen, 2010). However, according to Breukers and Wolsink (2007) citizen participation in a windmill project is not able to turn people fundamentally opposing wind power to supporters, but participation may raise the acceptance of conditional supporters.

2.2 Citizen participation and public resistance

2.2.1 Stakeholder management and citizen participation

Large infrastructure projects are oftentimes politically sensitive and concern a diverse group of stakeholders, which all have different, often opposing interests, needs and expectations. This makes the decision-making process more complex and riskier (Erkul et al., 2016; Cleland, 1995). Stakeholders represent the interest of a changing local landscape due to the construction. Freeman (1984, p.46) defines stakeholders as “any group or individual who can affect, or is affected by, the achievement of the organisation’s objectives”. Veenswijk (2013) describes stakeholders as internal and external actors involved in a project who are able to influence the course and image of a project. Delphine (2019) argues that road infrastructure projects are differently received by stakeholders based on their expectations and/or experiences with the project. Demands of different stakeholder groups can vary, a project could benefit one group and at the same time negatively impact another group (Olander & Landin, 2005). The interests and influence of stakeholders is not constant over time and could vary per stage of the construction (Olander, 2007; Cleland, 1995; Molwus, 2014).

To accommodate all stakeholder interests and achieve the qualitative best project outcome, appropriate management is needed (Mok et al., 2015). Stakeholder management and citizen participation bring stakeholder concerns together (André et al., 2006; Bourne and Walker, 2005), enhance transparency and benefit a project’s long-term viability, value, success and the community (Cleland, 1995; Erkul et al., 2016; Li et al, 2012) and reduces cost and time (Boonstra & Boelens, 2011). It is important that stakeholders that are positively or negatively affected by a project are involved (André et al., 2006; Lizarralde, 2011).

Arnstein (1969) emphasizes participation as a redistribution of power that enables the ‘have-not citizens’ to share in the benefits of society, which relates to the arguments in paragraph 2.1.2. The participation ladder is a model that describes different gradations of citizen participation and can be divided into three categories, see figure 2. Non-participation is lowest on the ladder, meaning a low amount of participation, the aim is not to enable participation in a project. Citizens hear and are heard, but their lack of power gives them no assurance that the status quo will be changed. Citizen power is on top of the ladder, citizens obtain most of the decision-making seats and managerial control in local programs, which is according to Arnstein desirable. However, after Arnstein introduced this ladder, many authors responded and criticized the model and new scales or ladders were developed (e.g.; Collins et al., 2006; Connor, 1988; Cornwall, 2008; Maier, 2001). Edelenbos emphasizes the importance of policy arrangements for participation. He introduces five gradations of interactivity in policy arrangements: inform, consult, advice, co-production and participation in decision-making (Edelenbos et al., 2006). The higher the gradation, the more responsibility lies with citizens.

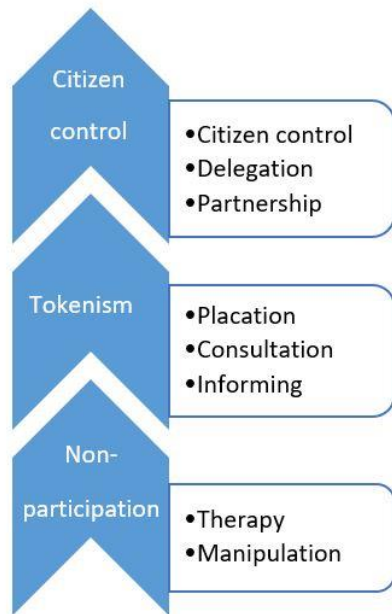


Figure 2 The ladder of participation (based on Arnstein, 1969)

Despite all these arguments in favour of citizen involvement, there are different comments on the effectiveness of participation. Citizen participation potentially leads to delays and cost overruns. Benefits in relation to the costs may be minimal (Galbreath, 2006; Garcia-Castro & Fancoeur, 2016). Still, stakeholder management may be able to reduce risks and bigger overruns in later stages of a project (Boonstra & Boelens, 2011; Cleland, 1995; Erkul et al., 2016; Li et al, 2012). When stakeholders participate, but the process is not well-run, they are involved too late in the process or they perceive their input not to have an influence, this could lead to ‘consultation fatigue’ (Burton et al. 2004; Olander, 2006; Molwus, 2014). In this way, citizen participation becomes ‘talking shops’ which slow down decision-making and creates ambiguities (Reed, 2008). Rijsberman & Van de Ven emphasize that this ‘negotiated nonsense’ is a flaw in interactive planning. “People can agree on 1+1=3 and regard it as true for the remainder of the planning process” (Rijsberman & Van de Ven, 2000, p.337). Additionally, next to a group that is more actively involved, a so-called ‘silent majority’ is present (Hamersma et al., 2016).

This corresponds with Arnstein (1969) and Bell et al. (2012) who advocate that participation is not just interaction, but also needs a redistribution of power. Fung (2004) notes that a lack of personal resources and social capital may prevent residents from engaging in participation processes. Also, selective stakeholder participation would be enhanced by the predominant political culture, holding off minority groups. Opinions that are gathered via participation are often based on the views of people that attend the meetings. Nonetheless, it can be questioned whether those opinions represent the view of the whole community, as those who voice their opinion and attend meetings are a selective group (Diduck & Sinclair, 2002; Hamersma, 2017; Mansfield et al., 2001; Woltjer, 2000).

In 1998, the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters was held. The convention consisted of three pillars: access to environmental information; public participation and access to justice (Lee & Abbot, 2003). Formal stakeholder consultation with regard to the environment is guaranteed. The overall aim is: “Effective public participation (...) thereby increasing the accountability and transparency of the decision-making process and contributing to public awareness of environmental issues and support for the decisions taken.” (European Commission, 2003). The access to justice in environmental matters guarantees the

right to appeal to administrative procedures and dispute acts that violate the provisions of environmental law (European Commission, 2003).

2.2.2 Participation in a Dutch context

In the Netherlands, from the 1960s onwards several attempts have been made to involve citizens in planning processes (Boonstra & Boelens, 2011). Since the Aarhus Convention coming into force in 2001, the integration of formal consultation in the planning process was enhanced by Dutch law. Residents should be at least informed during several milestones of a project, be able to give a formal written response or appeal to the project plans from the government (Hamersma, 2017; Rijkswaterstaat, 2013). Nowadays, the public can voice opinions on project plans and in formal consultation all concerned stakeholders are included. Within this process, residents are mainly consulted. This means opinions are gathered and taken into account in the planning process. The overall level of public involvement is slowly increasing over time, but more control of citizens on the planning process is scarce (Rijkswaterstaat, 2009). The opinions of residents are considered in different ways. Next to public involvement interests are estimated in environmental regulations and impact assessments (Stolp et al., 2002). On top of that, Woltjer (2002) argues that participatory planning is regarded by planners as an extra opportunity to gain public support. Planners do not bring every part of a project up for discussion, as this would be a risk, but use public involvement selectively.

The Dutch National Ombudsman (Nationale Ombudsman, 2019) recently found that citizens felt frustrated, insufficiently heard and overtaken in the process of public involvement. There is a gap between the theory and practice of stakeholder involvement. The government struggles with including citizens early in the process, which influences the outcomes and experiences in later stages. It is hard to include citizens again, once they feel left out. It is also important that the input of citizens is taken seriously. Therefore, the Ombudsman recommends making a good start early in the process, especially managing expectations (Nationale Ombudsman, 2019), which relates to the assumptions of a just planning process in section 2.1.2. In an official response, the Minister of Infrastructure & Water Management emphasizes that there are chances to improve formal consultation in line with the recommendations of the Ombudsman in the new Environment and Planning Act. Also, within the Ministry improving the attitude of civil servants to residents is a point of attention. To improve the public involvement in different projects best practice projects are used as an example (Van Nieuwenhuizen Wijbenga, 2019).

2.2.3 (Subjective) experience of effects

Living near a big road can have positive and negative influences on residents. Road infrastructure is associated with economic growth on the macro-level (Banister & Berechman, 2000; Aschauer, 1989), from which residents benefit. On top of that, residents experience increased accessibility. However, negative effects (externalities) can be traffic jams, noise nuisance, air pollution and their accompanying health effects like loss of sleep, high blood pressure and the development of cardiovascular disease and stress (Beyazit, 2015; WHO, 2000). Also, the infrastructure itself may lead to (visual) barrier effects (Hamersma et al., 2014).

In project construction, stakeholder satisfaction can be defined as: “the achievement of stakeholders' pre-project expectations in the actual performance of each project stage” (Li et al., 2013, p.124). Stakeholder satisfaction supposedly is a good measure for project success complementing measures of time, cost and quality (Yang et al., 2011; Davis, 2016; Li et al., 2013). In general, residents are satisfied with living near a highway (Kroesen et al., 2010; Hamersma et al., 2014). However, the impact of noise nuisance is stronger closer to the highway. When a resident frequently uses the highway, this positively influences satisfaction. Barrier effects do not have a direct effect, but a view on a sound screen supposedly causes a lower residential satisfaction than a view on the highway. Also, the way residents perceive the highway externalities is an important factor for residential satisfaction, citizens

can forget about the inadequacies of a project's construction because of high satisfaction with the new situation (Hamersma et al., 2014; Lim & Mohamed, 1999). Thus, a satisfied citizen does not necessarily live in a healthy environment. In this way, the implementation of non-statutory measures (bovenwettelijke maatregelen), like an additional sound screen in a project can influence the way residents perceive externalities and thus their residential satisfaction.

2.2.4 Citizen engagement

Within the scope of this research, it is important to explore which stakeholders are participating and thus influence the decision-making and planning process as only a selective group participates in the planning process (see 2.2.1). Residents that actively search for information, are more likely to be concerned about a project (Hamersma et al., 2016). Opponents of project design and implementation, or those that are not satisfied, tend to attend public meetings concerning the project or are more likely to be civically engaged than those supporting the plan (Olander & Landing, 2005; Mansfield et al., 2001; McComas, 2001). On top of that, residents that have a good social network in the neighbourhood tend to be more involved in civic activities in their neighbourhood. Also, citizens with a higher income and educational opportunities are more likely to engage due to a stronger sense of attachment and investment to the community (Grillo et al., 2010). According to Costa and Kahn (2004) economic aspects like time and money may also have an influence. There is a negative relationship between participation in local organisations and income inequality (Alesina and La Ferrara, 2000). Higher education has a small effect on the likelihood of civic engagement (Egerton, 2002).

Although little studies on the relationship between socioeconomic status and the planning of road infrastructure projects were found, different studies touch upon the researched relationship in another context. Duncan and Duncan (2003) argue that if wealth in a community is increasing, the community is likely to exert more control on its houses and surroundings. Also, Dear (1992) and Davis & Bali (2008) found evidence that people with higher socioeconomic status or better-resourced property owners, are better equipped to participate in opposition. Taylor (2013) found that in Melbourne certain communities with higher economic interests in the planning system and resources to engage within this planning system make more use of opposition channels. On top of that, areas with higher income and education showed higher numbers of appeal. Planners should take into account that participatory policies may have exclusionary outcomes.

2.2.5 Public resistance

When a highway is constructed, the construction process brings uncertainty. Risk and insecurity on house prices for example, are associated with this change in the neighbourhood (Dear, 1991). When citizens feel that they are left out of the process or discussion or when they experience that social and environmental impacts are not addressed properly this may push them to protest against these plans (Healey, 1997; Hanna et al., 2016).

The NIMBY concept (Not In My BackYard) holds that certain services like windmills and highways, are generally considered to be beneficial by people, but in practice, people are strongly opposed when these facilities are placed in close proximity (van der Horst, 2007), a social gap (Wolsink, 2006). So, the benefits of a project are regional, while the negative effects are local. Wolsink (2006), considers NIMBY to be a misleading and inaccurate way to understand local opposition to a project. On top of that, a rejection of car use in general by residents can also trigger opposition (Hamersma et al., 2014; North, 1998). When a project is considered to be undesirable, residents may decide to protest (Aeschbacher, 2006; Hamersma et al., 2014)

The media plays a unique role in the planning process. They are no real stakeholder, but are able to substantially influence project outcomes in either a negative or positive way. Opponents can for example use the media to express their opinions (Olander & Landin, 2005). Teo & Loosemore (2011)

emphasize that the associated risk of a project should be communicated well, as this can trigger community protest played out in the media. In this way, the media can play a role in delaying an infrastructure project or changing its scope. Hanna et al. (2016) emphasize that media is an important channel for minority protest groups. Also, public opinion, mass media and social media influence each other and protests.

2.3 (Dutch) Planning of road infrastructure projects

2.3.1 Planning of road infrastructure

Road infrastructure projects are inherently complex and uncertain; (Klakegg, 2016; Lessard et al., 2014; De Roo & Silva, 2010; Salet et al., 2013 Verweij & Gerrits 2013) due to different trends, processes and procedures. According to Arts (2007), different trends make the planning process more complex. The interests of stakeholders do not always correspond with each other; scarceness of space in densely populated countries and spatial claims do not correspond; there is a changing relationship between the national government and other parties, plans are not a blueprint and citizens are increasingly involved; there is a growing influence of legislation on different scales (Arts, 2007).

There is not an adequate market for the construction of infrastructure, among others due to: high investment costs; the external effects of the construction like a negative impact on the environment; the inflexibility and long-term character of infrastructure and its place in a bigger network (Arts, 2007; Brandao & Saraiva, 2008). Because of these complications and to ensure free movement in public space, the responsibility of the planning of main infrastructure lays with the national government. To deal with these issues it is important to execute analyses before measures are taken and to make flexibility and adaptivity inherent in the planning process (Arts, 2007). The planning of road infrastructure projects takes a long period of time. A planning process of approximately ten years is regular. Most of this time is taken by the process beforehand to make the definite decision to proceed with a project. Processes sometimes even come to a standstill and deal with cost and time overruns (Cantarelli, 2011; Flyvberg, 2005) (see 2.4.2)

2.3.2 Time Delays, cost overruns and scope change in road infrastructure projects

An infrastructure project consists of three cohesive elements: time, money and scope (or project quality) on which the realisation of an infrastructure project can be measured. Within the scope of this study, time delays, cost overruns and scope are viewed as indicators of the planning process, which is influenced by the inherent participation process. Big infrastructure projects often cope with cost overruns and delays (Flyvberg, 2007). The causes for these delays and cost overruns have been widely studied (Cantarelli et al., 2013; Flyvbjerg, 2007; Singh, 2010). However, cost overruns and schedule overruns are not mutually exclusive. It is possible that a project is delivered on time, but experienced considerable cost overruns and vice versa (Love et al., 2015). Schedule delays and cost overruns are thus mutually dependent, but they also strengthen each other, e.g. a project experiencing cost overruns stagnates a project (Elverding, 2008). Different studies noted that overruns contribute to the dissatisfaction of stakeholders in project outcomes (Love et al., 2015; Zhen-Yu et al., 2008; Skitmore and Ng, 2003). This relationship also applies the other way around, the dissatisfaction of local residents possibly leads to resistance to a project and thus delays (Hamersma et al., 2016). On top of that, opposing stakeholder voices could cause underperformance of a project (Flyvberg, 2011).

In literature, there are many definitions for cost overruns. Love et al. (2012) explains a cost overrun as a budget increase, cost increase or a cost growth. A schedule delay is defined by Kaliba et al. (2008, p. 524) as “a situation where a construction project does not come to completion within the planned period”. Delays, or schedule overruns, are common in infrastructure projects, most often experienced before construction even started (Flyvberg et al., 2002; Kaliba et al., 2008;). Morris (1997) adds that this stage is the most important for the success or failure of a project. Different studies note different

factors that lead to cost overruns, mostly relating to project execution (Merewitz, 1973; Hall, 1980; Merrow, 1981; Merrow, 1988; Schexnayder, 2003), but this is normally not the main reason for cost overruns (Merrow 1988; Merrow 1981). Causes that are autonomously able to cause overruns relate to uncertainties in predicting the future, for example scope changes and inadequate decision-making processes. Also, costs rise due to the inability to adapt to changing circumstances. Plans are based on predictions, trying to create a reality only existing on paper to cope with risks (Cantarelli et al., 2010). This corresponds with the causes explained by the The GAO/RCED (1997): initial and preliminary estimates are not a reliable predictor for costs; when the project is designed, initial estimates are modified the more detailed plans; project costs are influenced by, among others, inflation and scope change over time.

Project scope is the intended project goal (Rijkswaterstaat, 2009A). Kaliba et al. (2009) and De Jong et al. (2013) argue that effective scope definition is essential for successful project delivery. The scope needs to be defined from initiation onwards to completion. Scope change can lead to schedule delays and cost overruns and claims due to an inadequate analysis of a project in the first stages. However, project scope or ambition level of a project is frequently altered over time (Flyvberg, 2011). According to Flyvberg (2011) the root cause for the aforementioned overruns is structural underestimation and ignorance of among others risks of complexity and scope change before and during project implementation. So, planners are too optimistic on time, budget and scope, leading to underperformance of a project.

In 2007, a special committee was appointed (Commissie Elverding) by the Minister of Transport and Water Management to investigate the reasons for big delays in the planning of infrastructure projects in the Netherlands and to come up with solutions to speed up the process (Elverding, 2008). The main reason for these delays is the increased complexity and legalization of today's society. Among others because space is scarce in the Netherlands, while at the same time economy, mobility and population grow (Arts, 2007; Elverding 2008). The other reasons correspond with Cantarelli (2010) and Morris (1997). Most delay takes place during the decision-making process. A good example of this is the planning process of the Dutch Betuwelijn, a freight railroad line from Rotterdam to the German border. Before the construction started, costs had already doubled and the construction suffered numerous delays. It turned out that calculation of macro-economic advantages and financial benefits relied on optimistic assumptions, advantages of the line were structurally overestimated and criticism ignored, turning the Betuwelijn in a controversial project (Arts et al., 2016). Residents increasingly voice their opinions and their higher demands make the planning process a continuous balance between growing welfare and the environment (Elverding et al., 2008).

The committee concluded that there are three main factors causing delays in the decision-making process (Elverding et al., 2008). First, the administrative culture with a lack of administrative inconsistency and bustle, project costs are oftentimes underestimated (Flyvberg, 2007) and scope change leads to discussions on who should bear what costs. Secondly, there are different phases in the decision-making process with accompanying issues. For example, the exploration phase often lacks quality and argued necessity of a project, being a source for later discussions slowing down the process. Third, complex and sectoral legislation slows down decision-making, especially concerning environmental legislation. To tackle the problems and improve the existing decision-making process, the programme Faster and Better was introduced. This programme aimed to speed up the planning process by reducing unnecessary information and facilitate better decisions by increased public participation, adjusted legislation and improved procedures for evaluation and prioritizing of projects in an integrated approach (Arts, 2010; Klakegg, 2016).

2.4 Dutch planning practice

2.4.1 Planning procedures

The Dutch Infrastructure Planning Act (Tracéwet) encompasses the required actions before a new road can be constructed or a current road upgraded. In the Infrastructure Planning Act, consultation of citizens is ensured in different stages. Citizens can respond to the draft route decision (ontwerptracébesluit) and the final route decision (tracébesluit). Rijkswaterstaat is the executive agency of the Dutch Ministry of Infrastructure and Water Management and is responsible for the main infrastructure in the country, including design, construction, management and maintenance (Rijkswaterstaat, n.d.B). Thus, Rijkswaterstaat as an agency mainly works with and complies to the Infrastructure and Planning Act. Since 2012, a justification for formal stakeholder consultation is required in different stages of the Infrastructure Planning Act. In the Route Decision Procedure should be pointed out how the stakeholders are involved. In the structural vision (structuurvisie) should be justified how formal consultation was incorporated. In the route decision, it is justified in which way citizens and societal organisations are incorporated in the process (Rijkswaterstaat, 2011).

The MIRT (Meerjarenprogramma Infrastructuur, Ruimte en Transport) is the Dutch long-range programme on infrastructure, spatial development and transport. This integrated programme ensures coherence and synergy between different policy fields and improves alignment and efficiency (Klakegg, 2016; Heeres, 2017). The MIRT consists of different stages (see figure 3) and of different projects and programmes located in the physical domain creating a framework for infrastructure projects. The MIRT rules specify, in line with the recommendations of Elverding, the process steps and how projects should be developed (Klakegg, 2016). These are 'start wide-minded', 'funnel and decide transparently' and 'adaptive programming' (Ministerie van Infrastructuur & Waterstaat, 2017). In 2016 the MIRT was evaluated in the interdepartmental policy research on the MIRT (IBO MIRT). The IBO recommends increased flexibility, integrality and adaptivity. Based on these findings the MIRT rules were adjusted. The findings were supported by the Cabinet (Ministerie van Infrastructuur & Milieu, 2016). Additionally, in 2019 the MIRT rules were evaluated based on the 2016 adjustments. The recommendations mainly concerned transparency, increased flexibility, integrality, and sustainable decision-making (Ministerie van Infrastructuur & Waterstaat, 2019).

Environmental Impact Assessment (milieueffectrapportage) is a procedure, ensured in EU guidelines and the Dutch Infrastructure Planning Act (Kenniscentrum InfoMil, n.d.A) to ensure that environmental interests are taken into account in the preparation and decision of the planning process (Kenniscentrum InfoMil, n.d.B). Formal stakeholder consultation is included in the EIA procedure. One main objection to EIA in the Netherlands is that it has a narrow focus, as a result, opportunities to improve the quality of the region are missed (Arts & Van Lamoen, 2005). Often, EIA is regarded as a legal requirement, thus decision-makers rarely go beyond EIA prescription and environmental laws (Runhaar et al., 2013). On top of that, EIA is considered to be costly, lengthy, outdated and an overload of information (Arts et al., 2012; Kempenaar et al., 2005). This criticism was taken into account in the revisions of EIA regulation in 2010. Subsequently, there have been some simplifications and reductions of safeguards in the procedures (Arts et al., 2012). In the elaborate EIA there are two moments to submit an opinion: in the preliminary stage and when the MER (milieueffectrapport, final report) and design of the plan are available for inspection (terinzagelegging). These two moments are sufficient as required amounts of formal consultation. Nonetheless, often more elaborate forms of public involvement are encouraged (Kenniscentrum InfoMil, n.d.C).

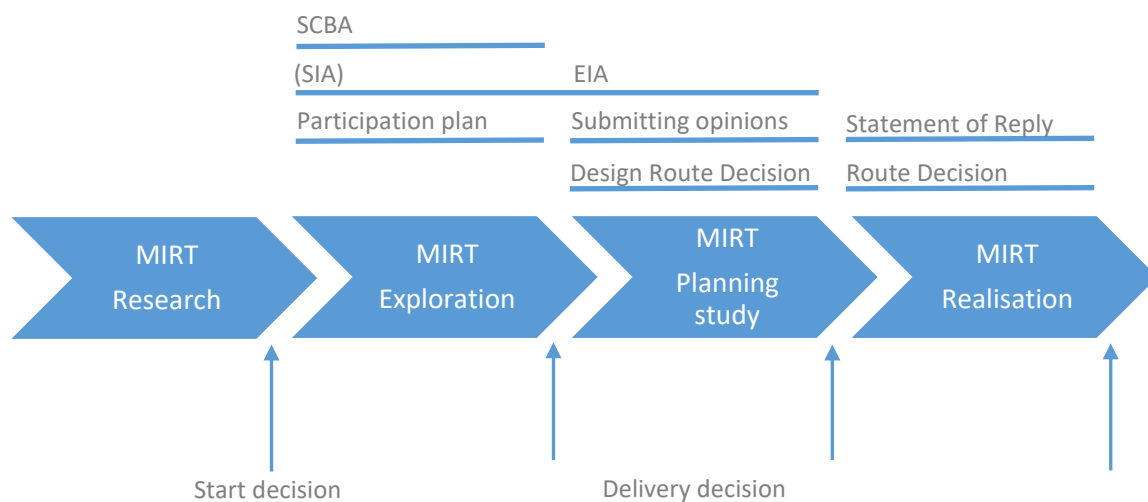


Figure 3. MIRT-procedure

For every project in the exploration phase of the MIRT, it is mandatory to execute a societal cost-benefit analysis (SCBA). The SCBA helps to make a good policy decision based on benefits and disadvantages of different alternatives. The SCBA summarizes the monetized effects of policy on welfare (Romijn & Renes, 2013; Faber & Mulders, 2012). A cost-benefit analysis considers the benefits and disadvantages for society as a whole. One group may benefit more from a project than another group, which links to questions of justice. A project possibly benefits higher-income groups and disadvantage lower-income groups.

In the General Administrative Law Act (Algemene Wet Bestuursrecht) formal forms of stakeholder consultation in infrastructure projects are ensured. After the EIA and draft route decision are accomplished, the public can submit an oral or written opinion to the plans. These opinions are investigated to see whether a plan or decision should be adjusted. When the decision is announced, all responses to the opinions are gathered in the Statement of reply (Nota van antwoord). All stakeholders can appeal to the Raad van State, which is the highest administrative judge in the Netherlands. In this instance, stakeholders should have a direct interest (Kenniscentrum InfoMil, n.d.D; Platform Participatie, n.d.).

The Code of Societal Participation encompasses the formal consultation of external stakeholders (citizens, companies and NGOs) in MIRT projects. Participation is described as the involvement of citizens, companies and NGOs in policy and decision-making. Public involvement is supposed to enhance the quality and public support of a project and at the same time shorten the process. The participation is supposed to be effective in case the managers are enthusiastic, civil servants execute it well and the input of the public is taken seriously. The code consists of three consecutive steps. The first step is to take all the input of the public into account during the whole planning process. The second step ensures that societal initiatives are handled the same way as initiatives initiated by governmental parties. The third and last step is transparency and communication, which ensures that every decision is public (Ministerie van Infrastructuur & Milieu, 2014). In 2017 the code was evaluated. They found that the code is not a one-to-one blueprint. It was recommended to enrich the code with 'soft factors', to create a framework in which is room for creativity and reflexivity; insert methods that ensure public involvement from early stages; monitor and evaluate projects in a reflexive way (Kwink groep, 2017)

2.4.2 Legal frame nuisance protection

In the Netherlands, nature and residents are protected from different kinds of nuisance. The prevention of noise pollution is regulated in the act on noise pollution. In this act, sound-sensitive objects, like houses, are protected for abundant noise nuisance caused by among others traffic. For construction and upgrades on the main road network, the Environmental Protection Act (Wet Milieubeheer) is in effect. In this act, it is ensured that sound-sensitive objects (geluidsgevoelige objecten), like houses and schools are protected of noise nuisance by preferred or maximum values (Kenniscentrum InfoMil, n.d.E). However, this norm is different than what is strived for. A noise level just under the norm is not necessarily pleasant, but a maximum tolerable value. The Environmental Protection Act (Wet Milieubeheer) also provides a legal framework for air quality. Namely, maximum values and basic obligations in context of European legislation. (Kenniscentrum InfoMil, n.d.F; Kenniscentrum InfoMil n.d.G). Non-statutory measures are not statutory obligatory when realising a project. Also, these measures are not part of the route decision and can, for example, be taken to reduce the amount of noise on top of the regular measures (Rijkwaterstaat, 2017). In 2010, it was decided by the government that regional parties should financially contribute to non-statutory measures (VVD-CDA, 2010).

Residents living close to a project do not always benefit from a project, but can disadvantage during construction or experience enhanced nuisance. This disadvantage is physically compensated as part of the costs of a project. The most effective way to compensate disadvantages is to mitigate the effects of a project instead of, for example, the siting of a park (Eijgenraam et al., 2000). In case the exposure to noise for houses is increased by a modification to the main road network, it is examined whether this can be limited. However, the noise reduction measures are not taken at all cost, as this would make the policies too expensive to execute. The 'efficiency criterion' (doelmatigheidscriteria) ensures that measures are financially effective to reduce noise (Bureau Sanering Verkeerslawaa, n.d.). Spatial decisions can also cause damage and fall in value of real estate, for example when a new highway is planned near a house. Right is done via compensation by the municipality as secured in the Spatial Planning Act (Wro) in the 'planning damage' (planschade) regulation (Rijksoverheid, n.d.A).

2.4.3 Integral planning

In the Netherlands, the planning and realization of road infrastructure were considered to be separate components. A specific planning practice emerged which can be described as 'line-oriented' due to its narrow focus and limited scope. A road was viewed as a separate entity, excluded from its surroundings and interaction with other spatial functions. This view was supported by its specific legislation, policy framework, funding mechanism and planning agency (Arts & De Vaan, 2010; Geerlings & Stead, 2003). This rigid framework did not match the societal and political dynamics, together making the process more complex (van der Heijden, 1996; Van den Brink, 2009; Koppenjan & Klijn, 2004). Currently, there is a growing demand for road infrastructure in the Netherlands. The population is growing and alongside also the number of travelled kilometres (CBS, 2019A) and the number of cars grew in recent years (CBS, 2020).

Heeres et al. (2010) argue that within an area-oriented approach, the scope of a project not only includes the infrastructure itself, but also the socioeconomic functions in the area. This is supported by Allmendinger and Haughton (2009), who state that to deal with problems in infrastructure planning, current society needs new scales of planning intervention. This more inclusive approach towards adjacent sectors facilitates inclusive development and creates synergies, (Arts, 2007; Lenferink et al., 2013).

In the Netherlands, a specific planning practice emerged concerning the planning and realisation of road infrastructure as a result of developments in the second half of the 20th century. During this period, economic prosperity and societal development initiated an increase in car ownership and

change of travel patterns. To accommodate this growth, investments were made to provide an adequate road infrastructure network. The accompanying planning practice had a narrow focus on the road itself, thus being 'line-oriented' in essence, comprising a small scope and mostly ignoring interaction between the road and its surrounding environment (Arts et al., 2016). This paradigm consequently incorporated "specific legislation, a sectoral policy framework, its own funding mechanisms and a specific planning agency" (Heeres et al., 2012, p.148).

Over time, this planning paradigm gradually transformed into an area-oriented approach. Area-oriented design integrates the objectives concerning the road infrastructure project with other developments in the area. The design is the result of a collaborative planning process that incorporates the views and opinions of stakeholders in the area. In this way, area-oriented planning is expected to better integrate the complexity of a newly planned road infrastructure, like needs, demands and opportunities into a project (Heeres et al., 2012; Arts et al., 2016).

In 2022, as expected, the Dutch framework of legislation concerning spatial development will be changed into one integral law: The Environmental and Planning Act (omgevingswet). The goal is to simplify and merge rules to speed up construction processes; stimulate sustainable projects and give space to local governments so that they can align their policies with their needs and ideas (Ministerie van Infrastructuur & Milieu, n.d.). Most importantly, in the Environment and Planning Act, stakeholder involvement will be mandatory in an early stage for all the stakeholders (Kistenkas et al., 2018; Klostermann et al., 2019). Civil servants no longer make plans which are executed accordingly. There is a co-operation with the environment, in which the environment has the initiative (Rotmans, 2018). However, the act does not specify the process of formal stakeholder consultation (Kistenkas et al., 2018; Klostermann et al., 2019). In some places, institutions are already working following the Environment and Planning Act. These plans are executed under the programme 'Already simply better' (Nu al eenvoudig beter). These projects are collected to serve as an example for other future projects. Rotmans (2018) in his essay, describes a gap between the letter and the spirit of the Environment and Planning Act. The spirit of the Environment and Planning Act is trust, in practice, there is strict monitoring and accountability, showing a certain distrust. In practice, the quality of decision-making is not strictly legal, but also depends on how it is executed by its civil servants in spirit of the law, which is also emphasized by Reed (2008). Thus, potentially there is a gap between the design and execution of the act. Frameworks on public involvement are needed to bridge this gap.

2.5 Expectations and conceptual model

Based on the topics and concepts discussed in the preceding sections, some expectations and a conceptual model are drafted. The expectations underly the research and research questions and function as hypotheses. The conceptual model shows how the theoretical concepts and planning procedures are interlinked.

2.5.1 Expectations

Based on the questions and literature there are different underlying expectations for this study:

1. Those who participate and those that object to project plans influence a project in time, money and scope.
2. When the local residents of a neighbourhood near a road infrastructure project are have a higher income or are higher educated, it is expected that they are more likely to participate in the planning process and have more skills to object to the plans. This leads to delays, cost overruns and enhanced quality of a project, due to the judicial processes and a more luxury variant of the project being executed with possibly a higher amount of mitigating/compensatory measures.
3. When the local residents of a neighbourhood near a road infrastructure project have a lower income or are lower educated, it is expected that they are less likely to participate in the planning process and have less skills to object to the plans. This leads to a relatively quick project execution with lower costs

and low quality of the project, due to a lack of judicial processes and a less luxury variant of the project being executed with possibly a lower amount of mitigating/compensatory measures.

2.5.2 Conceptual model

The preceding concepts are synthesized in the following conceptual model (figure 4).

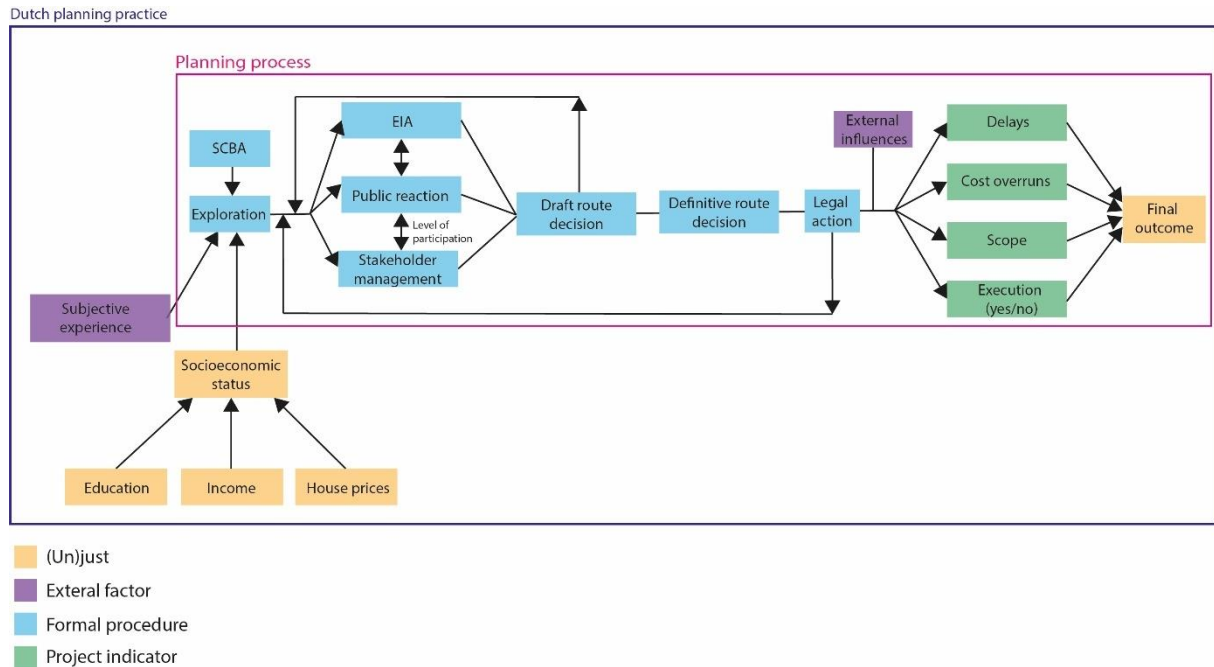


Figure 4. Conceptual model

The conceptual model above shows the relationship between elements discussed in the preceding sections. It shows how the primary elements of this research, socioeconomic status and the planning of infrastructure projects, are connected. The yellow elements concerning socioeconomic status experience a certain (un)fair distribution. It is researched whether this distribution leads to (un)fair outcomes of the final outcome (in purple). In blue the mediating factors that influence this relationship. Time, money, quality and execution yes/no in this way function as indicators. The blue elements are also chronologically arranged from left to right.

The elements are all centred in the box that represents Dutch planning practice as a culture that influences decisions. On top of that, the pink box represents the MIRT procedures and concerned legislation. Thus, socioeconomic status of the residents is considered as input for the planning process and participation. This influences time, money, scope and execution and in this way the final outcome of a project. The expectations laid out in section 2.5.1 are connected to the conceptual model, as socioeconomic status is considered as the input in the conceptual model, justice as the output. This relationship is mediated by the planning and participation process.

2.6 Resume: answering theoretical research questions

In the preceding sections different concepts and theories concerning social justice, stakeholder management and infrastructure planning were discussed. This section will answer the first two sub-questions in relation to the theoretical framework.

2.6.1 Social justice, road infrastructure planning and how it works out in participation

In this section the first sub-question is answered: How does social justice relate to the planning of road infrastructure projects and how is this ensured in the participation process? It was found that social

justice relates to infrastructure planning in different ways. Different planning intentions or aiming for a just city leads to different kinds of planning (Campbell, 2016). As various authors advocate participation being essential for a just city (among others, Harvey, 2003; Lefebvre, 1996; Marcuse et al., 2009), the ability to participate in the planning of an infrastructure project itself promotes social justice. Also, the built environment and thus infrastructure influences the abilities of residents (Alfasi & Fenster, 2014).

Thus, according to different social justice theories, residents have the right to participate in the planning process. Residents' response to a project is influenced by subjective experience and fairness of the outcome (Cowell, 2010). Resident's perception of justice in a project influences the public response (Gross, 2007). Being able to participate as a justice principle is ensured in Dutch planning and formal consultation procedures like EIA, Code of Societal Participation and General Administrative Law Act (see section 2.4.1). This provides residents the right to be heard and participate. Also, the different steps in the Code of Societal Participation relate to principles of justice and fairness as all stakeholders can give input which is handled the same way. Transparent communication is important as well. However, the way Dutch planning procedures and formal consultation are designed is not directly related to theories of social justice. On top of that, residents are not always able to execute their right to participate as the National Ombudsman (2019) found that residents feel insufficiently heard and sometimes experience a hesitant attitude of civil servants concerning public involvement. There appears to be a gap between the implementation of the different procedures like the Code of Societal Participation (Ministerie van Infrastructuur & Waterstaat, 2014) and how participants experience this. Subsequently, social justice influence participation also in another way. As shown in the conceptual model (see section 2.5.2) socioeconomic status of residents is input for participation. Social justice considers a just distribution of "what is owned, gained and lost by the members of a society" (Beyazit, 2011, p.117). A skewed distribution of socioeconomic status in nearby neighbourhoods might create differences in residents' ability to influence the creation of their living environment.

2.6.2 Reasons for infrastructure delays, cost overruns and scope change and how participation deals with it

This section answers the following sub-question: What are reasons for infrastructure delays, cost overruns and quality changes in road infrastructure projects and how is dealt with this in the participation process? Infrastructure projects often experience delays, cost overruns and scope change. Cost overruns and schedule delays are mutually dependent and strengthen each other (Elverding, 2008). Delays are often experienced during the administrative planning phase (Flyvberg et al., 2002; Kaliba et al., 2008;). One reason for cost overruns and delays is the fact that plans are based on predictions, while the future is inherently unsure (Cantarelli et al., 2010; GAO/RCED, 1997). Risks are structurally underestimated or ignored (Flyvberg, 2011). Additionally, the project scope is frequently altered over time (Flyvberg, 2011). On top of that, today's society deals with increased complexity and legalization. Especially complex sectoral legislation slows down decision-making (Arts, 2007; Elverding, 2008). Additionally, the planning process is a balance between residents voicing their opinions and higher demand and the environment (Cantarelli, 2010; Elverding, 2008). Finally, administrative inconsistency and bustle and underestimation of costs leads to discussions (Flyvberg, 2007) (see section 2.3.2).

Relating this to participation, it was found that overruns contribute to the dissatisfaction of stakeholders in project outcomes (Love et al., 2015; Zhen-Yu et al., 2008; Skitmore and Ng, 2003). On the other hand, dissatisfaction of residents possibly leads to resistance to a project and thus delays (Hamersma et al., 2016). Additionally, opposing stakeholder voices could cause underperformance of a project (Flyvberg, 2011). Within planning procedures, participation is ensured in different ways at certain moments (see section 2.4.1). The elaborate EIA procedures and legal steps add to the 'administrative bustle' that slows down a project. In the Code of Societal Participation (Ministerie van

Infrastructuur & Waterstaat, 2014) transparency and communication is one of the key steps. This holds that stakeholders are informed on the project and stay updated in case a project is delayed due to several reasons. Citizen participation potentially leads to delays and cost overruns (Galbreath, 2006; Garcia-Castro & Fancoeur, 2016). Stakeholders can, for example, submit an opinion on the scope or integration of a project. All stakeholders get an official answer to their submitted opinion in the final route decision. Stakeholders can also appeal to the Raad van State (see section 2.4.1). A higher number of submitted opinions and appeals take more time and can slow down a process, but possibly stakeholder management may be able to reduce risks and bigger overruns in later stages of a project (Boonstra & Boelens, 2011; Cleland, 1995; Erkul et al., 2016; Li et al, 2012).

3. Methodology

In the previous chapter the relevant theoretical concepts were discussed and synthesized in the conceptual model. In this chapter, the methods of data collection will be reviewed to operationalize the conceptual model. The chapter first discusses the literature research (section 3.1). It is explained why specific quantitative and qualitative research methods are chosen and how the data collection process went. In section 3.2 mixed methods are discussed. Section 3.3 defines the sample selection, data selection and indicators. The quantitative methods and analysis are laid out in section 3.4 and the qualitative methods and analysis in section 3.5. Finally, the ethical considerations concerning the research will be discussed (section 3.6).

3.1 Literature research

The previous chapter laid out different concepts concerning the focus of this research. To come to this theoretical framework, a literature research was conducted. The basis of the research were English peer-reviewed scientific articles. When available, the most recent articles were used to create a state-of-the-art overview. In some cases, older literature from before the 2000s was used in case the authors or concepts were still influential. To create a good overview on the legislative context different websites of governmental bodies were used as a source of information. The articles were collected by making use of different search engines, like Smartcat (University of Groningen) and Google Scholar. In the search process, different terms were used to come to relevant articles, among others 'social justice', 'spatial justice', 'stakeholder participation', 'stakeholder satisfaction', 'right to the city', 'infrastructure project', 'citizen participation', 'stakeholder management', 'cost overruns', 'schedule delays', 'scope change' and 'NIMBY'. These articles among others originated from the following journals: *Transport Policy*, *Environment and Planning B: Planning and Design*, *International Journal of Planning and Research*, *Journal of Transport Geography*; *Environmental Impact Assessment Review*; *IAPA Journal*; *Journal of Environmental Assessment Policy and Management*; *Journal of Environmental Management* and the *International Journal of Project Management*.

3.2 Mixed methods

When doing research, a researcher should make deliberate choices on the type of study, the logic of research design, data collection techniques, approaches to data analysis, interpretation and reporting (Yin, 2003). This study made use of mixed methods to understand the possible relationship between socioeconomic status and the progress of road infrastructure projects. The qualitative (the specific) data supported the quantitative data as quantitative data does not provide many in-depth details and in this way is incomplete. The qualitative data provided the necessary understanding to understand the specific relationships and processes (Yeager and Steiger, 2013). Literature research, desk study and semi-structured interviews were used as data collection techniques.

Within data collection, three principles are significant (Yin, 2003). First, make use of multiple sources (triangulation). Using mixed methods is beneficial, as data can be collected from different data sources, while at the same time using different methods, which is beneficial for the research. Secondly, create a case study database. A database in which all the gathered data is saved, makes the research more reliable. In this research, a digital database was created for the different methods. The quantitative data were stored in SPSS and ArcGIS, while the qualitative interview data were kept in transcripts. Third, maintain a chain of evidence: when the research is finished, the reader should be able to understand the underlying steps which are made in the research, to come to the conclusion and to understand why this conclusion is relevant for the research. The chain of evidence in this research was created by using a transparent research design, describing the procedures during the data collection period, making use of referencing and use transparent data to answer the different research questions. Four methods were used for collecting data in this study: literature study, desk research, statistical analysis, spatial analysis and semi-structured interviews.

A quantitative desk research on MIRT project overviews and a quantitative approach were used to analyse the data in SPSS and ArcMap. Subsequently, the outcomes of the quantitative research were interpreted and further researched by interviews with relevant people of the concerning road infrastructure projects, e.g. project and stakeholder managers. Based on the quantitative analysis, a qualitative approach was used to interpret the quantitative data. Semi-structured interviews were conducted with the concerned professionals like project or stakeholder managers to gain a more detailed insight in the processes and decisions concerned with specific projects and the way this influenced the planning process (Clifford et al., 2010).

3.3 Sample selection, data selection and indicators

3.3.1 Sample selection

The unit of analysis is determined by defining the spatial boundary, theoretical scope, and timeframe (Yin, 2003). The spatial boundary of this study were the borders of the Netherlands, as the explorative study focussed on Dutch road infrastructure projects of the main road network (hoofdwegenetwerk), so water and rail projects were excluded. Among others, as the main road network is managed by Rijkswaterstaat and thus holds the same guidelines for formal consultation in every project. The selected projects for quantitative analysis were all present in the Dutch MIRT (Meerjarenprogramma Infrastructuur, Ruimte en Transport). To reduce the number of cases to a qualitative and workable data set, the study focussed on road infrastructure projects involving the construction of a new road, the widening of a road or redirections of a road. Projects that concern the placement of rush-hour lanes were, for example, excluded as this is not a major impact on the road network influencing the local residents. Projects were included when they run (partly) through or along town limits (bebouwde kom). Projects taking place outside town limits were excluded, as there are fewer residents prevalent in their surroundings. Projects were excluded in case the route decision is not yet decided, as a project, in principle, is irrevocable after the route decision. The sample of 30 projects is representative, as the total amount of main road infrastructure projects is limited and all projects that met the requirements are included.

As places, values and the approach of road infrastructure projects change over time, a timeframe is defined. The studied road infrastructure projects received a route decision (tracébesluit) or were stopped (vernietigingsbesluit) between 2010 and 2019, except for the project A28/A1 Junction Hoevelaken. This time range also offers a representable and workable dataset. This period was chosen, as 2010 marked the beginning of a new governmental coalition, Rutte I. By this time, it was decided to focus on especially the statutorily required remedial measures for infrastructure projects and limit the application of so-called non-statutory measures for infrastructure projects. Statutory measures are measures that are required to meet the legal standards of e.g. environmental and nature regulations (e.g. noise levels, air pollution, air quality). Non-statutory measures are not obligatory to realise a project, but are extra measures taken for improving environmental or spatial quality. They can (further) reduce the amount of nuisance. These measures can be decided in the route decision or in an agreement (Rijkswaterstaat, 2017). Table 1 below shows the list of the selected infrastructure projects of the MIRT, figure 5 shows the project on the map of the Netherlands and Dutch main road network.

Table 1. Quantitative project sample

	Project	Location	Form
1	A7 Zuidelijke Ringweg fase 2	Groningen	New construction and upgrade
2	A9 Omlegging Badhoevedorp	Badhoevedorp	New construction and widening
3	N31 Leeuwarden	Leeuwarden	New construction
4	A15 Maasvlakte – Vaanplein	Rotterdam	New construction and widening
5	A2 Maastricht	Maastricht	New construction and upgrade
6	A1/A6/A9 SAA	Amsterdam/Almere	New construction and widening
7	A74 Venlo	Venlo	New construction
8	A28/A1 Knooppunt Hoevelaken	Hoevelaken	Widening and upgrade
9	A2 Oudenrijn – Everdingen	Utrecht	New construction and widening
10	A4 Dinteloord – Bergen op Zoom	Dinteloord/Bergen op Zoom	New construction and upgrade
11	A4 Delft – Schiedam	Delft/Schiedam	New construction
12	A1 Bunschoten – Knooppunt Hoevelaken	Bunschoten/Hoevelaken	Widening
13	A10 Knooppunten De Nieuwe Meer en Amstel	Amsterdam	Widening and upgrade
14	A27/A1 Utrecht Noord – Eemnes – aansluiting Bunschoten	Utrecht	Widening and upgrade
15	A27/A12 Ring Utrecht	Utrecht	New construction, widening and upgrade
16	Zuidasdok	Amsterdam	New construction and widening
17	A16 Rotterdam	Rotterdam	New construction
18	A24 Blankenburgverbinding	Rotterdam	New construction
19	A4 Vlietland N14	Leiden/Den Haag	Widening
20	Rijnlandroute	Katwijk	New construction and widening
21	A4 Het Vonderen – Kerensheide	Sittard/Geleen/Echt	Widening
22	N35 Nijverdalen – Wierden	Nijverdalen/Wierden	Widening
23	A1 Apeldoorn - Azelo	Apeldoorn/Azelo	Widening
24	N35 Zwolle – Wijthmen	Zwolle/Wijthmen	New construction and widening
25	A1 Apeldoorn-Zuid – Beekbergen	Apeldoorn/Beekbergen	New construction and upgrade
26	Via15	Arnhem/Nijmegen	New construction, widening and upgrade
27	N31 Harlingen	Harlingen	New construction, widening and upgrade
28	A6/A7 Joure	Joure	Widening and upgrade
29	N50 Ens – Emmeloord	Emmeloord/Ens	Widening and upgrade
30	N18 Varsseveld – Enschede	Varsseveld/Enschede	New construction and upgrade



Figure 5. Quantitative project sample

The project sample for the qualitative analysis was based on the MIRT document study and spatial analysis. To make a good comparison between the in-depth project, five projects were chosen based on their characteristics. Figure 6 shows the sample of five projects that were selected for in-depth research based on the quantitative analysis. The sample of projects is chosen based on the outcomes of the MIRT document study and spatial analysis. The projects A9 Diversion Badhoevedorp and Junction Hoewelaken scored high on the indicators of the planning process (time, money, scope) as well as a high average socioeconomic status. The projects N35 Zwolle – Wijthmen and Blankenburgverbinding scored low on the indicators (see section 3.4.2) of the planning process and have an on average lower socioeconomic status. The project N18 Varsseveld – Enschede scored intermediate and has a long route and passes through different residential areas to make comparisons within a project.

To select the neighbourhoods surrounding a project of which the accompanying statistics, underlie the statistical analysis ArcMap was used as a basis. First, a map of the division of neighbourhoods and districts in the Netherlands by CBS (CBS, 2015) was taken as a base layer. This map was chosen, as this is the year with the most recent and complete dataset considering income on a neighbourhood level, which was needed for the statistical analysis. Subsequently, a second layer was added: the Dutch

national road database (NWB). From the NWB, specific road parts were selected to match the project routes as shown in the MIRT. The road parts were selected based on the 'before' situation of the project. For example, in case of the A9 Badhoevedorp project, the neighbourhoods surrounding the old road, not the new road, were selected. The neighbourhoods were then selected based on a 500-meter buffer around the selected projects. This buffer was chosen, as the zone for the integration measures of a project e.g. for sensitive objects (geluidsgevoelige objecten) within city limits for big projects with more than three lanes is 400 – 600 meters. A 500-meter buffer in this way is the average of these two (Kenniscentrum InfoMil, n.d.H). In case of a diversion or new road, the buffer was created based on the old situation. Among others, because in some cases the new road was built in outside city limits with little residents living nearby. On top of that, in some cases the new road was not yet constructed, so it was practically not possible to create a buffer around the project in ArcMap.

Neighbourhoods that were outside city limits or showed no data as they had too little households or an industrial or commercial function, were removed from the dataset. Section 3.4 shows how the average incomes are distributed over the neighbourhoods in the selected projects for qualitative analysis, the income categorization is the same as used by CBS StatLine. Subsequently, the neighbourhood data for the different indicators (see section 3.4.2) was taken as a basis for the statistical analysis.



Figure 6. Qualitative project sample

3.4 Quantitative analysis

A desk research on MIRT documents and demographic characteristics in different databases provided information on the projects concerning cost overruns, delays, scope change and the accompanying socioeconomic status. These findings provided the basis for a statistical and spatial analysis.

3.4.1 MIRT document study

In a document study on the MIRT, the found data is structured per project in Excel. The focus of this analysis was delays, cost overruns and scope change. Different numbers were calculated for each neighbourhood to give insights on its planning process compared to other projects. For example, an index to show which projects dealt with delays and cost overruns. Also, the year the definitive route decision was taken compared to the total project time, is seen as an indicator for the planning process on an administrative level. A quick route decision would indicate for example low amounts of protests. Scope changes, like the extra siting of a tunnel, are gathered based on changes mentioned in the MIRT. This data is used to function as a possible explanation for outlying numbers. In case in the MIRT a period instead of a specific year is predicted for a project to finish, the latest year is taken for every project as predicted completion. In case the project was not yet finished in 2019, the project was not left out of the selection, as the period before project realisation is considered to be most influential for delays, cost overruns and scope change as the plans are not definitive. Data on the income and education level of neighbourhoods surrounding a project was collected to indicate how projects compare based on their (un) weighted averages. Not all neighbourhoods were taken into account, for specific neighbourhood selection see 3.5.1.

3.4.2 Indicators

The dependent variables were time, costs and scope. These were possibly influenced by the independent variables of income, education and house values.

For the variable 'time', there were different indicators. Whether a project is delivered earlier or later than expected during the prognosis in the MIRT. In which stage of the planning process the route decision is taken. An early route decision suggested that the planning process went well with little protest and administrative bustle, and vice versa for a late route decision. The number of years a project has been in the 'exploration' and 'plan study' phase in the MIRT compared to the total project time, was as well seen as an indicator for protests and a complex planning process. A project that struggled to get a route decision or in case it took a long time, are clues that local residents caused delays. Especially, because in the preceding phases of the route decision, stakeholder involvement and the influence on the area are taken into account (Rijkswaterstaat, n.d.A).

Considering budget, when a project was finished with lower budget than expected during first MIRT prognosis, or when a project far overran this prognosis, this was viewed as an indicator for potential amounts of protests and complex planning processes.

Infrastructure projects often change scope during the planning process. For example, a tunnel is preferred instead of the first idea of just a road broadening. Or the other way around. This could also include the siting of extra non-statutory measures like sound screens. Whether the project scope changed over time is researched in the MIRT documents. A changed project scope, and thus quality, is considered to be an indicator of possible protests and problems during the planning process. For example, a rich neighbourhood voices many complaints and gets a tunnel instead of a broadening next to their homes.

The income of a neighbourhood was taken as a measure for the capability to protest and participate in the planning process. A high income indicated a higher capability to protest and participate in participation processes. From the Dutch statistics bureau (CBS) data for the neighbourhoods surrounding a project was collected: the income per resident and income recipient, percentage of households and persons with the lowest income and percentage of households and persons with the highest income (based on CBS 2015).

Education was, as well as income, an indicator of the capability of residents to protest and participate in the planning process. A high completed education was considered to indicate a higher capability to protest and participate in participation processes and vice versa. For the surrounding neighbourhoods, data on the highest completed education (low, middle, high in percentage) was gathered. On top of that, house prices (WOZ-value) were regarded as a predictor of income and highest education. The data originated from different sources, mostly CBS (CBS, 2019B; CBS, 2019C), other numbers were acquired from different municipalities.

3.4.3 Statistical analysis

Multiple linear regression was used to analyse delays and cost overruns (dependent variables) concerning the independent variables. The independent variables were the indicators as outcomes of the desk study and CBS data. The numbers per project on delays and cost overruns were the outcome of the MIRT desk study. The independent variables were numbers on income, education and house prices derived from, among others, CBS (2015). The weighted average of the neighbourhood data per project was taken based on the number of citizens in a neighbourhood, a number which is vulnerable for outliers. Subsequently, the unweighted average was used, as the outliers of the average can show inequalities within a neighbourhood. The accompanying null hypothesis was $h_0 = \text{no effect}$. It was expected that there would be no significant prediction of the project planning (time, money, scope change) by socioeconomic status (among others property value (WOZ), income and education).

A binary logistic regression was executed to analyse the relationship between the dependent variable scope change (yes/no) and the independent variables on income, education, house prices and number of citizens as control variable. The accompanying null hypothesis was $h_0 = \text{no effect}$.

The quantitative sample consisted of 30 cases, which was suitable for a regression analysis, the sample met the requirements for a multiple linear regression and binary logistic regression. Some projects were not yet finished when the MIRT study and statistical analysis were executed, this could influence the validity of the numbers. However, for all projects the route decision was already taken and delays often occur before project realisation.

3.4.4 Spatial analysis

In this research, a spatial analysis was executed to get a grip on the spatial layout of the data and to see whether the research expectations (see section 2.5.1) correspond with reality.

The MIRT document study and neighbourhood statistics were used as a basis to create a map for spatial analysis. The MIRT document study provided per project a number on different indicators concerning time, budget and scope. The map shows the spatial distribution and score per project for socioeconomic status and project planning.

To come to a score per project on project planning, the indicators 'index time', 'planning study phase in relation to total time' and 'index budget' were operated. These indicators were chosen, as they exemplify how the planning of a project went. Index time showed if a project stayed within the initial project delivery or took more time. The planning study in relation to total time showed if a project endured administrative delay. Index budget showed whether a project stayed within or exceeded the budget. Major scope change was not taken into account as this is a binary indicator (yes or no), so an average rank could not be calculated per project.

For socioeconomic status, the indicators 'average income per resident', 'percentage higher educated' and 'WOZ-value' were taken, as these together shape an image of the socioeconomic status in a neighbourhood. In some cases, the percentage education was not available on a neighbourhood level, in that case the available data on the city district was taken. To come to a score per project for both

project planning and socioeconomic status, the average rank for the indicators was calculated. This was done, as the numbers on the different indicators were not homogeneous. In this way, it was shown whether a project scored relatively high or low compared to the other projects.

The map aimed to spatially analyse per project if the project score matched the research expectations. On top of that, the spatial analysis showed how the score on project planning and socioeconomic status were geographically spread out over the country. Additionally, a map per project in the qualitative sample show the income distribution between neighbourhoods surrounding a project route.

3.5 Qualitative analysis

3.5.1 Semi-structured interviews

In total fourteen interviews were conducted with professionals and residents that were involved in the projects to gain a more detailed insight in the processes and decisions concerned with specific projects and the way this influenced the planning process for a small sample of projects.

The interviews took place in the period between March 18 and May 12. These interviews gave meaning to the data acquired by the quantitative research. The interviews were semi-structured, as this form gave the interviewee the possibility to come up with issues that they find important (Clifford et al., 2010) and the interviewer was able to respond to issues coming up during the conversation (O'Leary, 2004). So, the form and proceedings of the interview were not fully clear beforehand. These qualities are important as a structured interview would not allow responding to new issues coming up during the interview that were not known before. Every interview was based on an interview guide which was composed before the interview took place. The interview guide for every interviewee was unique, based on the background of the interviewee. However, all interview guides had the same base, which makes it easier to process the outcomes. Appendix 1 comprises the basic interview guide.

3.5.2 Processing of the interviews

Every semi-structured interview that was conducted is recorded and transcribed. When conducting the interviews, every respondent was asked permission to record the interview. Additionally, the interviewees gave permission on informed consent. Also, it was emphasized that the transcripts would be anonymised, for this same reason the transcripts are not added as an appendix to the study, but are available on request. The interviewees were informed that it was possible to withdraw from the interview at any moment and that they were able to withdraw statements after the concept processing of the interview was shared with them via email. None of the interviewees wanted to withdraw statements or requested alterations. A part of the interviewees wanted to be anonymous, for consistency all interviewees are referred to by their position, not their names. The interviews were held in Dutch, as this is the native language of all interviewees and researcher. The quotes in the result section are translated as precise as possible to stay close to the original meaning.

The transcripts of the interviews were coded via the software of Atlas.t. In table 2 you find an overview of the interviewees, their organisation, position and date the interview was conducted.

3.5.3 Selection of interviewees

For every project, both the project manager and stakeholder manager were interviewed. They are relevant for this study, as the project managers can give a good insight into the project as a whole, while the stakeholder managers have more detailed insights on the inclusion of stakeholders and participation in the project. Together they can form a clear picture of the proceedings and considerations of the project. On top of that, two interviews were conducted with a citizen that

participated in one of the projects as a local administrator in a village council. The contact with citizens was made via the project organisation. It was made sure that the interviewees were not fierce opponents, but could give a nuanced view of their experience with the process of formal consultation in a project. Additionally, two interviews were conducted with experienced stakeholder managers within Rijkswaterstaat who were also mentioned by several of the project and stakeholder managers. These interviews gave insights and context to the experiences of the interviewed project and stakeholder managers. The interviewed project and stakeholder manager were all employed by Rijkswaterstaat. This could create a bias in the outcomes. However, Rijkswaterstaat is the main executing institute of the Ministry of Infrastructure and Water Management and plays a prominent role in the planning process. The interviews from a citizens' perspective could nuance this view. In the text, the interviewees are referenced as # with their accompanying number.

Table 2. Overview interviewees

Name	Position	Project	Date of interview
Interviewee 1	Stakeholder manager	A9 Omlegging Badhoevedorp	18-03-2020
Interviewee 2	Project director	Blankenburgverbinding	25-03-2020
Interviewee 3	Project manager	A9 Omlegging Badhoevedorp and A28/A1 Knooppunt Hoevelaken	30-03-2020
Interviewee 4	Stakeholder manager	N35 Zwolle – Wijthmen	31-03-2020
Interviewee 5	Project manager	A9 Omlegging Badhoevedorp	01-04-2020
Interviewee 6	Stakeholder manager	Blankenburgverbinding	01-04-2020
Interviewee 7	Stakeholder manager	Knooppunt Hoevelaken	07-04-2020
Interviewee 8	Project manager	N35 Zwolle - Wijthmen	09-04-2020
Interviewee 9	Project manager	N18 Varsseveld – Enschede	14-04-2020
Interviewee 10	Stakeholder manager	N18 Varsseveld – Enschede	23-04-2020
Interviewee 11	Former chairman village council Badhoevedorp	A9 Omlegging Badhoevedorp	28-04-2020
Interviewee 12	Experienced stakeholder manager	SAA	30-04-2020
Interviewee 13	Experienced stakeholder manager and network director	A.o. N18 Varsseveld – Enschede and A12 Arnhem	11-05-2020
Interviewee 14	Acting chairman area development committee Rozenburg	Blankenburgverbinding	13-05-2020

3.5.4 Coding

To analyse the transcripts of the interviews in a structural way the transcripts were coded by making use of Atlas.ti. This programme can be used to qualitatively analyse data. By coding interpretive tags were assigned to a part of the text based on relevant categories or themes concerning the research (Cope, 2010). Coding is the initial step to analyse interview data. Codes are defined as “tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study” (Miles and Huberman 1994: 56). Developing codes is a circular, iterative process (DeCuir-Gunby et al., 2011). To structure the coding process, a codebook was created. “A codebook is a set of codes, definitions, and examples used as a guide to help analyze interview data. Codebooks are essential to analysing qualitative research because they provide a formalized operationalization of the codes.” (DeCuir-Gunby et al., 2011, p.138). The codebook of this research can be found in appendix 2, the conceptual model as shown in figure 4 is the basis of the codebook. The code category ‘socioeconomic status’ refers to the input on the left side of the conceptual model. The code category ‘justice’ connects

to the justice of the socioeconomic status and project output in the conceptual model and how the planning process mediates this relationship. The code category 'resistance' relates to the public response to the planning process and 'participation' to the 'EIA', 'public reaction' and 'stakeholder management' in the conceptual model. The code categories 'time', 'budget' and 'scope' refer to right part of the conceptual model, being the outcome of the planning process. The code categories 'communication' and 'stakeholders' do not specifically apply to one part of the conceptual model but emerged as important categories during the analysis of the interviews.

The codebook consisted of both inductive and deductive codes. Deductive codes were drafted before the interviews took place, while inductive codes on the other hand are a result of the data analysis. An example of inductive codes are 'in-vivo codes', which consist of terms that were mentioned by the interviewees. This is among other beneficial, as it shows how the interviewee articulates his observations (Castleberry & Nolen, 2018; in Clifford et al., 2010). The analysis of the transcripts via codes makes it possible to find shared experiences and processes between the interviews.

3.6 Ethical considerations

When doing research, it is important that the research is underpinned with ethical considerations. Hay (2013) describes three ethical principles underlying research. First of all, justice, which considers if the research is just and emphasizes the distribution of benefits and burdens. Secondly, beneficence/non-maleficence concerns whether the researcher is doing harm or doing good. The third principle, respect, considers whether individuals or groups are, among others, respected in their welfare, beliefs and rights. However, local communities near the infrastructure projects are not the prime object of this study. Still, the principles underlie the interviews and underpin this study overall.

One ethical aspect prominent in this study is the positionality of the researcher, or in other words, the position of the researcher is decided by where the researcher stands with respect to the studied object (Merriam et al., 2001). For this study, this is relevant as the researcher was during the research period an intern at Rijkswaterstaat, which is the executive agency of the Ministry of Infrastructure and Water Management and thus responsible for the researched road infrastructure projects. On the one hand, this allowed the researcher to study the topic from the inside and could easily address the concerning professionals. However, this may have influenced the neutrality concerning the topic and the position of Rijkswaterstaat, the documents analysis and the quantitative analysis have been important ('triangulation'). Furthermore, also residents were interviewed to hear 'another side of the story'.

4. Results - Little evidence or something else might be at hand?

In this chapter, the results of both the quantitative (section 4.1) and qualitative research (section 4.2) will be presented. Both the findings of the statistical and spatial analysis are shown. The qualitative project sample is described and subsequently, the findings based on the interviews are demonstrated in relation to the research questions. Section 4.1.3 answers the third sub-question. Section 4.3 encompasses a qualitative data analysis and answers the fourth and fifth sub-questions.

4.1 Quantitative findings

4.1.1 Statistical analysis

A quantitative analysis was executed to research whether there is a relationship between different indicators of socioeconomic status and indicators of the planning project, e.g. time, costs and scope in order to answer the third research question: How does the socioeconomic status of neighbourhoods relate to the planning of road infrastructure projects?

Different multiple linear regressions and logistic regressions were executed in SPSS. Table 3 provides the results for the multiple and binary logistic regressions investigating the relationship between socioeconomic status and the planning of road infrastructure projects (delays, cost overruns, scope). In every regression, the indicators for socioeconomic status were: 'WOZ-value', 'income per resident', 'percentage people with lowest income', 'percentage people with highest income', 'percentage lower educated' and 'percentage higher educated'. In seven out of twelve regressions, $p > 0,05$. This shows that, considering the accounted variables, there is no significant impact of the socioeconomic variable on project time, costs and scope change in seven out of twelve regressions. In five regressions $p < 0,05$, but not all variables in the equation were significant.

The variable for socioeconomic status was found to predict project time. The multiple linear regression with weighted variables ($F(6, 23 = 34,101, p < 0,000)$) was significant. Based on the adjusted R^2 , 89% of the variance of costs could be explained by the variables. Within the significant regression, only the 'income per resident' ($p = 0,025$), 'percentage persons with highest income' ($p = 0,032$) and 'percentage higher educated' ($p = 0,002$), were found to be a significant predictor of costs. The Pearson Correlation showed that the variables for 'income per resident' ($r = -0,657(30), p = 0,000$), 'percentage persons with highest income' ($r = -0,634(30), p = 0,000$) and 'percentage higher educated' ($r = -0,921(30), p = 0,000$) have a significant ($p < 0,05$) and moderate to strong negative relation with costs. Thus, an increase of income per resident, percentage persons with highest income and percentage higher educated supposedly leads to a decrease in costs. This opposes the expectations in section 2.5.1. In the multiple linear regression with unweighted variables, a significant regression equation was found ($F(6, 23 = 34,101, p < 0,000)$, with an adjusted R^2 of 0,86). Only 'percentage higher educated' was found to be a significant predictor of costs ($p = 0,016$). The Pearson Correlation showed that the variables for 'percentage higher educated' ($r = -0,901(30), p = 0,000$) has a significant ($p < 0,05$) and strong negative relation with cost overruns. Thus, when the percentage higher educated increases, costs decrease. This is again contrary to the expectations.

In a binary logistic regression socioeconomic status was found to predict scope change. A significant regression equation was found with unweighted variables in the 200-meter model ($df = 6, p < 0,023$ and a Nagelkerke R^2 of 0,516) and weighted variables ($df = 6, p < 0,028$ and a Nagelkerke R^2 of 0,503). In the unweighted model, only 'percentage lower educated' was found to be a significant predictor of scope change ($p = 0,046$). However, the Pearson Correlation showed that there is no significant correlation between 'percentage lower educated' and scope change ($r = -0,068(30), p = 0,720$). In the weighted model, only 'WOZ-value' ($p = 0,039$) and 'percentage persons with lowest income' ($p = 0,039$) were found to be a significant predictor of scope change. Nonetheless, the Pearson Correlation showed

that there is no significant correlation between 'WOZ-value', 'percentage persons with lowest income' and scope change ($r = -0,202(30)$, $p = 0,285$; $r = -0,203(30)$, $p = 0,221$). In the 500-meter model with weighted variables ($df = 6$, $p < 0,031$ and a Nagelkerke R^2 of 0,494), the 'percentage lower educated' ($p = 0,041$) and 'percentage higher educated' ($p = 0,048$) were found to predict scope change. However, the Pearson Correlation showed that there is no significant correlation between 'percentage lower educated', 'percentage higher educated' and scope change ($r = 0,148(30)$, $p = 0,056$; $r = -0,056(30)$, $p = 0,769$).

Overall, it was found that there are indications that some variables of socioeconomic status are able to significantly predict costs and thus cost overruns, with a moderate to strong negative relation. That means that in some cases socioeconomic status could influence whether a project stays within budget, but the negative relation opposes the research expectations. In none of the regressions a significant relationship between socioeconomic status and time, and thus schedule delays, was found. Only in one regression, 'WOZ-value' and 'percentage persons with lowest income', had a significant impact on scope change, however, no significant correlation was found. This means that there is no significant evidence that the number of households with a low income within a neighbourhood predicts scope change.

In order to account for the rather bland results and their insignificant scores, one can think of different explanations. First, in various projects the number of nearby neighbourhoods was very high. This impacts the average which is taken in every equation. It was expected that a 200-meter buffer around the projects would reduce the number of nearby neighbourhoods. In this way a stronger effect was expected, because the numbers would not be flattened due to a high number of neighbourhoods. On top of that, it is expected that nearby residents experience more nuisance and project impact and are more likely to protest and/or participate. However, the difference between the 200-meter and 500-meter model could not prevent a flattening of the numbers. Still, for both the significant regressions on cost and scope change, the 200-meter models showed a higher significance. Subsequently, a few individuals in one neighbourhood might be able to impact a project. So, numbers on the neighbourhood might smoothen out data. Last, not all projects in the sample are finished already, so not all numbers on time and costs may be fully correct yet. This could also explain a flattening of the effect.

Table 3. Regression results

Regression results

Predictor	<u>Weighted average 200m buffer zone model</u>			<u>Unweighted average 200m buffer zone model</u>			<u>Weighted average 500m buffer zone model</u>			<u>Unweighted average 500m buffer zone model</u>		
	DV = time	DV = costs	DV = scope change*	DV = time	DV = costs	DV = scope change*	DV = time	DV = costs	DV = scope change*	DV = time	DV = costs	DV = scope change*
WOZ-value	0,947	0,127	0,049*	0,671	0,16	0,123	0,723	0,055	0,039*	0,384	0,335	0,116
Income per resident	0,861	0,025*	0,784	0,906	0,059	0,97	0,770	0,353	0,540	0,835	0,803	0,934
Percentage persons with lowest income	0,341	0,358	0,100	0,935	0,921	0,287	0,437	0,203	0,039*	0,876	0,231	0,100
Percentage persons with highest income	0,656	0,032*	0,989	0,758	0,181	0,299	0,589	0,114	0,596	0,985	0,088	0,961
Percentage lower educated	0,783	0,285	0,113	0,077	0,329	0,046*	0,733	0,785	0,062	0,112	0,961	0,041*
Percentage higher educated	0,761	0,002**	0,173	0,073	0,016*	0,055	0,735	0,769	0,079	0,105	0,535	0,048*
Adjusted R-square	0,056	0,899		0,148	0,86		0,061	0,318		0,141	0,281	
P-value	0,964	0,000***	0,088	0,678	0,000***	0,023*	0,956	0,146	0,028*	0,707	0,223	0,031*

*Binary logistic regression

4.1.2 Spatial analysis

Next to the statistical analysis, also a spatial analysis was executed to research the relationship between socioeconomic status and project planning. Figure 7 shows an overview map in which every dot represents one of the projects in the project sample. The map shows per project a category score on planning indicators and socioeconomic status. The numbers 1 to 5 correspond with the five projects in the qualitative sample. For time and budget, a yellow score means that the project was relatively quick and endured no or limited cost overruns. This is the other way around for a red score and likewise orange is the intermediate score. For socioeconomic status, a yellow score indicates a relatively low socioeconomic status based on income, house value and education, and likewise higher socioeconomic status for the red colour. The map shows how within one project these two are related. Section 2.5.1 laid out different expectations concerning the relationship between socioeconomic of local residents and project planning. In short, it is expected that a project with a relatively low socioeconomic status of surrounding neighbourhoods coheres with a low score on the project planning, so the project went relatively quick with limited cost overruns. Thus, a dot should be fully yellow to show this relationship. The same holds for a relatively higher socioeconomic status cohering with a high score on project planning, meaning the project suffered different delays and cost overruns. So, the dot is expected to be fully red, as the two scores correspond with each other. However, only in 9 out of the total of 30 cases, a dot is fully yellow, orange or red. While the expectation would be 30 out of 30. A combination of yellow and orange or orange and red shows an intermediate effect. Especially interesting is that in 9 cases there is a combination of a yellow and red score, which opposes the expectations. So, in almost one-third of the cases, an opposite situation of the expectations was found. On top of that, in 4 cases outside the Randstad, there is a combination of a low score of socioeconomic status combined with a high score on project planning. Overall, map shows that the expectations do not hold, thus the expectations do not correspond with the reality of the research sample projects.

Additionally, the map shows little indications for a distinct geographical distribution for the score on planning indicators. However, for the score on socioeconomic status, a geographic distribution is visible that shows a distinction between 'Randstad' (western part of the Netherlands) and non-Randstad, as the red scores are mostly present in the Randstad and yellow mostly on the outer skirts of the country. This could mean that infrastructure projects outside the Randstad are constructed in environments with a lower socioeconomic status. Another explanation could be that most economic activity in the Netherlands takes place in the Randstad (Oevering, 2019), subsequently more people with a higher socioeconomic status live there.

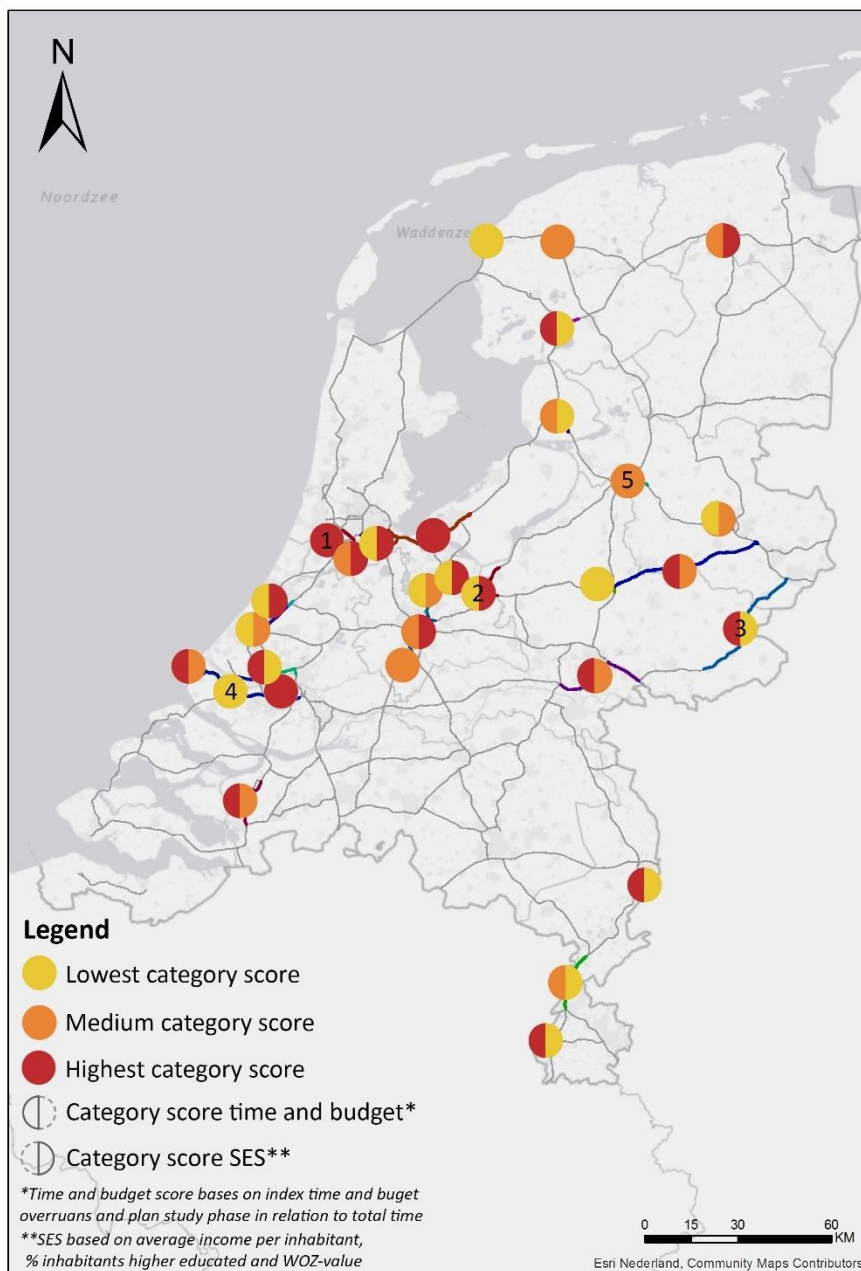


Figure 7 Overview map socioeconomic status and project planning

4.1.3 The relationship between socioeconomic status and project planning

This section shortly answers the third sub-question: How does the socioeconomic status of neighbourhoods relate to the planning of road infrastructure projects? The statistical analyses showed that there is no evidence that the socioeconomic status of the neighbourhoods influences the planning of infrastructure projects in the Netherlands. However, there are some indications that in some cases socioeconomic status could influence whether a project stays within budget. Additionally, the spatial analysis indicates that there is no influence of socioeconomic of neighbourhoods on project planning. Only in 9 out of 30 cases, the expected situation was present.

So, the quantitative findings show that no relationship was found between socioeconomic status and project planning. The findings do not give a clear picture of what is exactly going on. Maybe socioeconomic status plays a more subtle role in influencing project planning. The qualitative findings

can give deeper insight how socioeconomic status of residents influences project planning and how participation and stakeholder management affects this.

4.2 Qualitative findings

In section 4.1 the relationship between the socioeconomic status of neighbourhoods and the planning of road infrastructure projects was discussed. A significant relationship between the planning and different components of socioeconomic status could not be shown. However, it is still useful to look into a small sample of cases for anecdotal evidence and to see how this relationship worked out and could be influenced by participation processes in individual projects. This section describes the outcomes of the interviews, thereby providing the material to answer research question 4 (How just are road infrastructure projects and how may participation processes and stakeholder management influence this?) and research question 5 (Which factors are important in the participation process and stakeholder management in relation to social justice?). These questions will be discussed in the analysis in section 4.3.

First, it is shown what factors were found to be reasons for delays, overruns and scope change. Second, how socioeconomic status plays a role in the participation and planning process. Third, what factors were found to support a just participation process and what role inclusiveness of participation and communication to stakeholders play in this. Fourth, what causes public resistance and what factors were found to have a dampening effect on resistance. Finally, what the participation process looks like in the project sample and whether there is a difference visible between projects with a differing socioeconomic status of the surrounding neighbourhoods.

4.2.1 Studied projects

The project *A9 Diversion Badhoevedorp* is located in the western part of the Netherlands in the village of Badhoevedorp near Amsterdam (number 1 on the overview map, see section 3.3.1). Since the end of the 1960s, the A9 from Amstelveen to Alkmaar crossed the village and separated it into a southern and northern part. This created a visual and physical barrier and was not beneficial for the social and spatial coherence of the village. The traffic dealt with many traffic jams as the road could not be broadened due to the spatial structure. To solve this problem, a diversion of the road south of the village is executed (Ministerie van Verkeer & Waterstaat, 2009). From its construction onwards the road has been controversial in the village. Different residents pleaded for years to get the road out of the village again. Finally, in 2005 a covenant (bestuursovereenkomst) was signed by the regional stakeholders and the government that decided that the A9 would be diverted. When the project first entered the MIRT project overview, the project was projected to be delivered in 2005. In 2012 the final route decision was taken and 2013 the construction started. In 2017 the diversion was ready and in 2018 the demolition of the former road started. This means there was a delay of approximately 13 years, which is a relatively big delay. The project budget initially was €205 million, later this was updated to € 340 million in the last years of construction. This is a relatively high budget increase of 65%. The project itself had a relatively narrow scope with little integration measures, but the project itself was desired by the residents and they advocated in favour of the project for a long time. Residents that live in the center of Badhoevedorp are pleased with the diversion, as this increased the social and spatial coherence in the village and reduced nuisances. However, some residents living near the outer skirts of the village are less pleased, as the diversion is constructed ‘in their backyard’ and they now deal with the nuisance. The project *A9 Diversion Badhoevedorp* received 46 submitted opinions of which 24 from individuals or interest groups (Rijkswaterstaat, 2012). There were 12 appeals at the Raad van State of which 8 by individuals and 1 by the village council (Raad van State, 2012). Figure 8 shows the average income per neighborhood within a 500-meter range of the former A9. The residents were informed on the project by several information evenings and different means of communication like social media and newsletters. This relates to ‘consultation’, a mid-category of participation on Arnstein’s participation ladder (Arnstein, 1969). Additionally, when the project was in the realisation phase, different activities were organized to include residents (#1; #5).

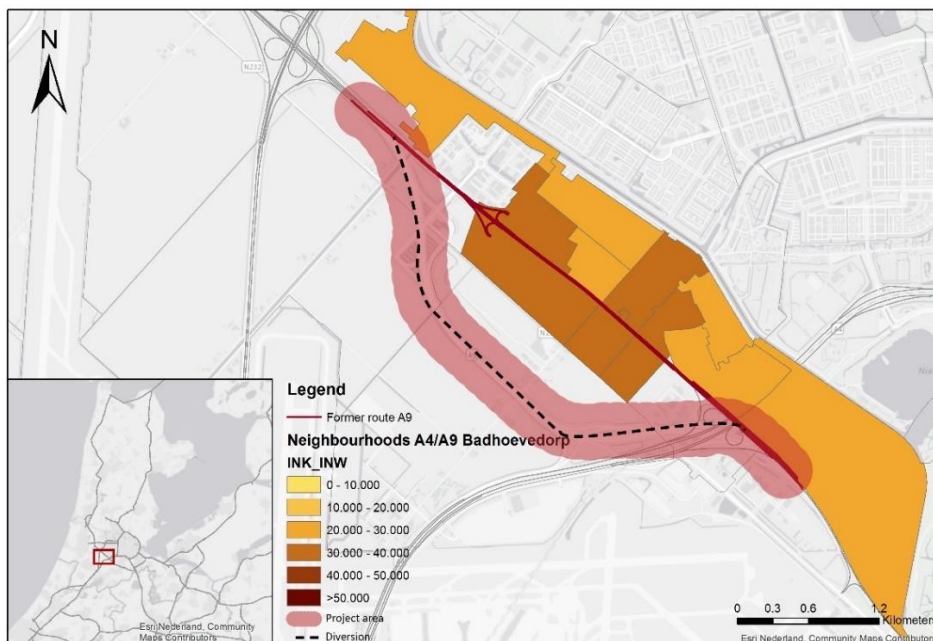


Figure 8. Project A9 Diversion Badhoevedorp

The *junction Hoevelaken* is an important node in the road network in the middle of the Netherlands (number 2 on the overview map, see section 3.3.1). Traffic from the south, east, north and the region pass the junction to reach the Randsad and Schiphol and vice versa. The roads are overloaded and traffic jams are recurring. The junction itself is not sufficient for modern-day standards. On top of that, liveability is under pressure in the surrounding towns like Amersfoort, Leusden, Hoevelaken, Nijkerk and Terschuur due to noise nuisance and stealth traffic. To solve these problems, the project A28/A1 Junction Hoevelaken upgrades the junction itself and broadens the connected roads (Rijkswaterstaat, 2018). In 2006, a management agreement of the regional parties was signed. In 2010/2011 the project had to apply austerity, which led to creative involvement of market parties. In 2018 the draft route decision was decided. Initially, the project was planned to be completed in 2019. Now, the project delivery is planned in 2023-2025. Relatively, this would mean a medium project delay. The initial budget was €676 million, now the budget is updated to €774 million, meaning a relatively low budget increase of 14%. The project scope is relatively elaborate with different integration measures and local wishes integrated. The municipalities of Amersfoort and Nijkerk financially contribute for non-statutory sound measures. The residents were involved via feedback groups (klankbordgroepen) and were regularly informed via information meetings, newsletters and an interactive project website. This kind of participation relates to a mid-category participation, namely placation, on Arnstein’s ladder (Arnstein, 1969). The project received 277 submitted opinions (Rijkswaterstaat, 2019), it is not yet known how many are submitted by individuals. The definitive route decision is still expected, so there are no number of appeals available. Figure 9 shows the average income per neighbourhood along the route.

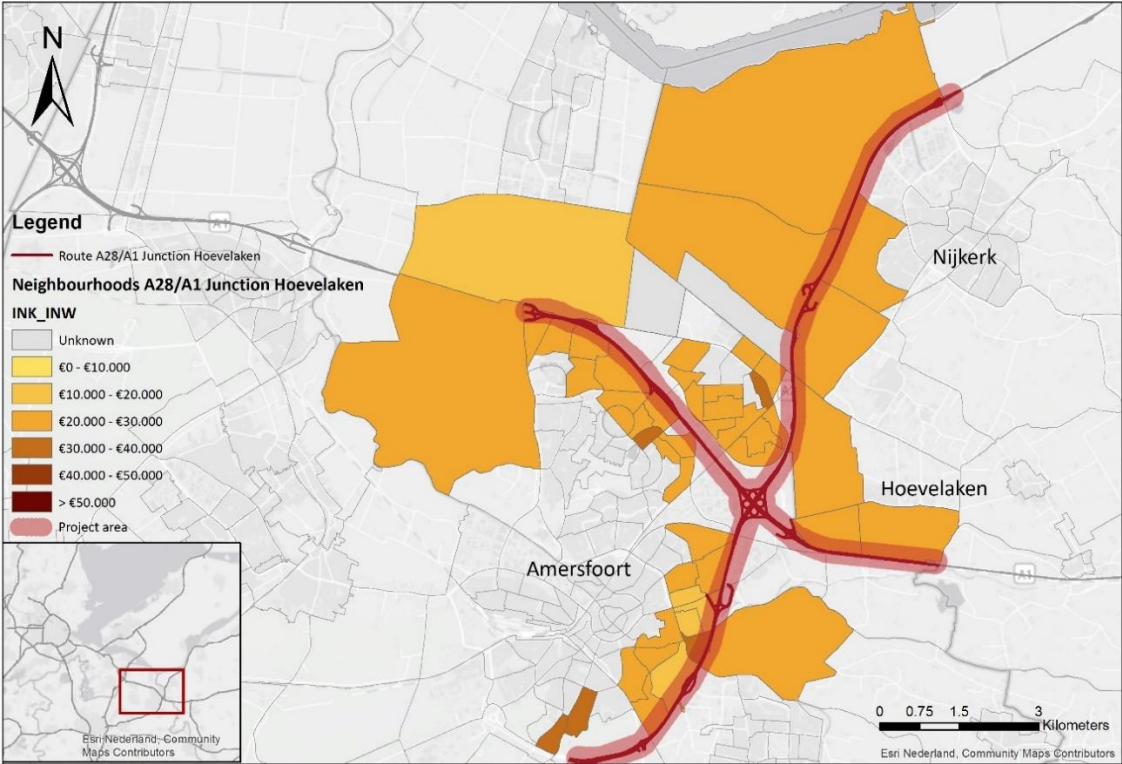


Figure 9. Project A28/A1 Junction Hoevelaken

Near *Varsseveld* the N18 connects to the highway A18 (number 3 on the overview map, see section 3.3.1), creating an important connection between the Twente City region and the cities of Doetinchem, Arnhem and Nijmegen in the eastern part of the Netherlands. The N18 is considered to be a slow and unsafe road due to the high number of crossings, increased traffic and a mix of slow and quick vehicles. The road also creates nuisance for residents, especially when the road crosses town limits. On top of that, the road functions as a barrier as it is hard to cross and is not up to date according to the standards for increased traffic. In the project N18 Varsseveld – Enschede the road is upgraded to higher standards by safety measures, reduced speed and diversions around the villages of Eibergen, Haaksbergen and Usselo (Ministerie van Infrastructuur & Milieu, 2015C). In 2005 the notification of intent (startnotitie) was signed, in 2013 the final route decision was taken. Initially, the project delivery was planned in 2016, but in 2018 the project was opened for traffic. This shows that the project endured relatively little delays. First, the project budget was projected to cost €313 million, finally this was updated to €446 million. So, the project experienced a relatively medium budget increase of 42%. The residents were mainly informed via different information meetings and channels. This relates to ‘consultation’, a mid-category of participation on Arnstein’s participation ladder (Arnstein, 1969). However, often more was done than legally required, especially up front. The project also deals with many cases of land purchase as a new road is constructed. In the project all residents were involved up front with a personal approach, with among others many home visits. Residents in the villages of Eibergen, Haaksbergen and Usselo are pleased with the project, as the road is removed from their living environments. This increased traffic safety and liveability in the villages. On the other hand, residents living near the new road now deal with the nuisances. The project received 379 submitted opinions of which 273 from individuals and interest groups. Most responses came from Haaksbergen (30%) followed by Eibergen (15%) and Enschede (15%) (Rijkswaterstaat, 2013). 40 Parties appealed at the Raad van State, of which 37 individuals (Raad van State, 2015). Figure 10 shows the average income per neighbourhood within city limits along the route. In general, the socioeconomic status of neighbourhoods is low and shows little differences in along towns on the route.

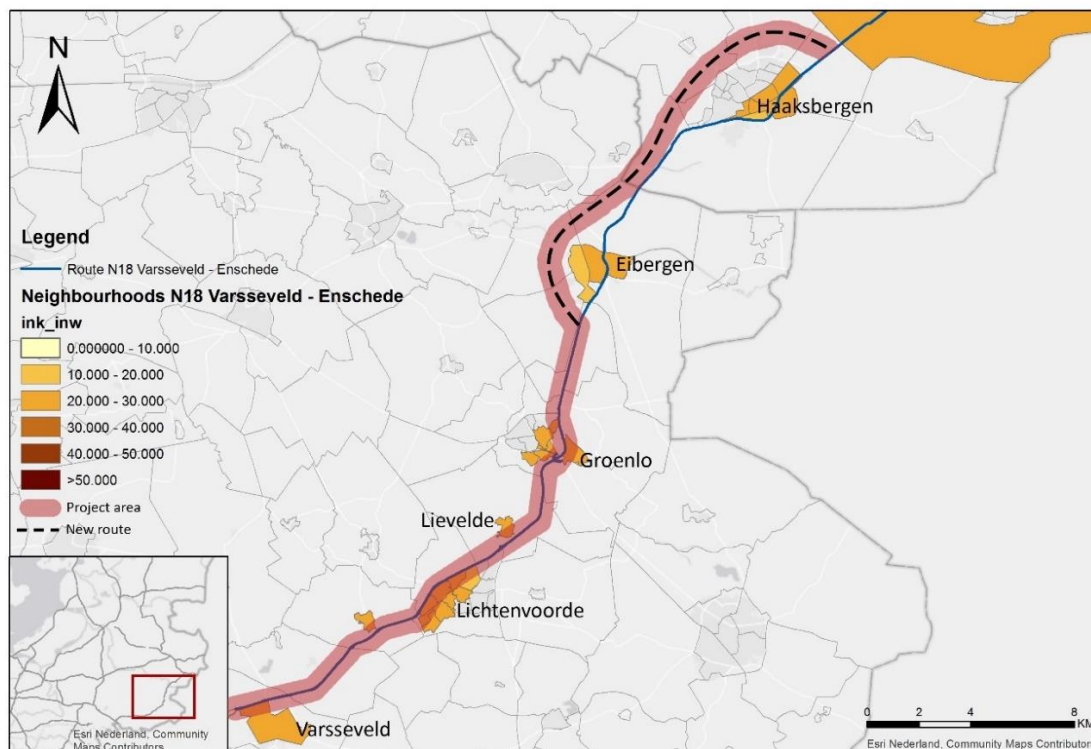


Figure 10. Project N18 Varsseveld - Enschede

The *Blankenburgverbinding* is a highway (A24) that connects the highways A15 and A20 west of Rotterdam (number 4 on the overview map, see section 3.3.1). The accessibility of the Rotterdam region is important within a Dutch, but also a European context due to the port of Rotterdam and Greenport Westland. The Blankenburgverbinding is supposed to solve (future) accessibility problems and make the network more robust (Ministerie van Infrastructuur & Milieu, 2015A). The history of the Blankenburgverbinding goes back to the 1960s. However, in 2008 the MIRT exploration ‘Rotterdam Vooruit’ was executed. From that moment, the project went more easily in terms of time. In 2016 the route decision was taken. When the project entered the MIRT, the project was planned to be finished in 2022. In the MIRT 2019, the project completion was planned in 2022-2024. Initially, the project costs were forecasted to be €1168 million, this is updated to €1116 million. This is remarkable, as this shows a budget decrease of 4%. Toll collection should bridge the gap in the costs. Stakeholders were early on involved in the project via different feedback groups. Residents could think along on the design and integration of the connection and they were involved via different media, like information meetings, an information centre, local newspapers and (online) newsletters. The fact that stakeholders could think along on the design places the project in a medium-high category on the participation ladder of Arnstein (1969). The final design is well integrated in the area with a wide scope with two tunnels, integration measures and a quality programme to add value for the region. The project dealt with resistance from different parties, especially concerning the impact on nature. On top of that, the town of Vlaardingen on the north bank opposed the project as the route cuts through natural areas and the A4 Delft – Schiedam was just constructed there. The village of Rozenburg on the south bank is in favour of the project, as this improves their accessibility. The project received 1981 submitted opinions, of which 37 were submitted by individuals and 10 by interest groups (Rijkswaterstaat, 2016). There were 4 appeals at the Raad van State, of which two by individuals, one from Natuurmonumenten and one by the foundation ‘A4 met Vaart’ (Raad van State, 2018). Figure 11 shows the average income of the nearby neighbourhoods of the new connection.

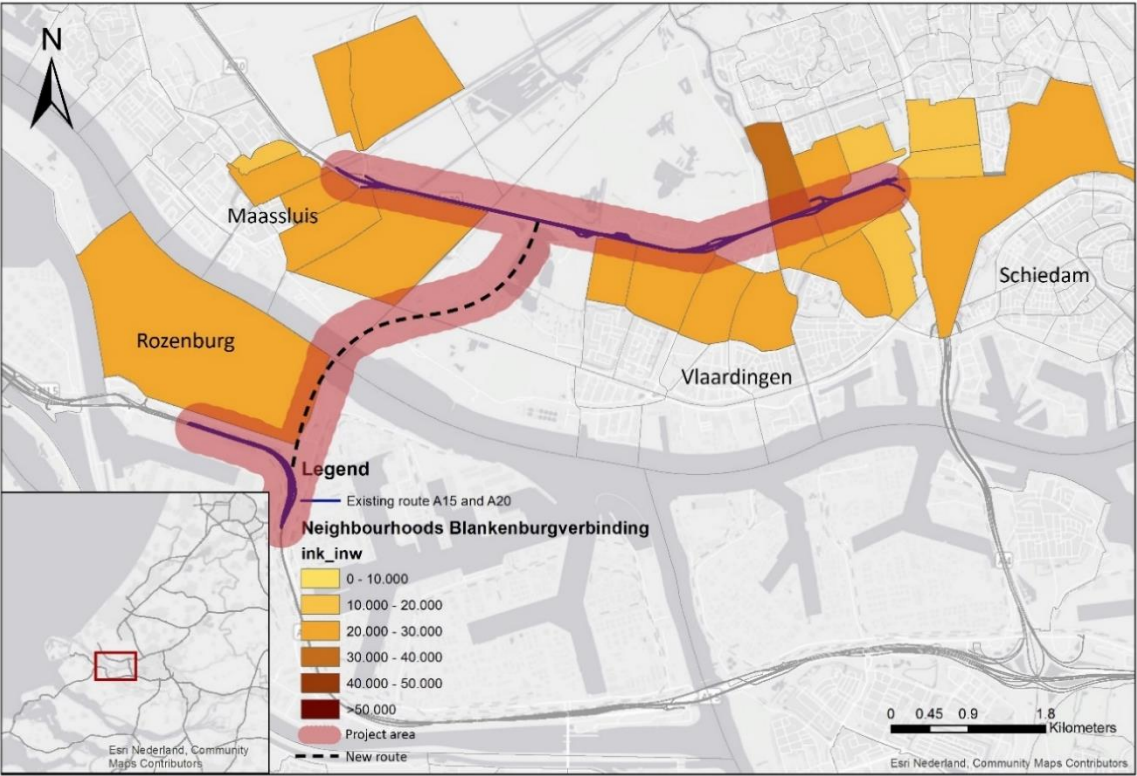


Figure 11. Project Blankenburgverbinding

The regional road *N35 between Zwolle and Wijthmen* (number 5 on the overview map, see section 3.3.1) copes with increasing amounts of traffic and bottlenecks. This causes problems concerning accessibility, traffic safety and liveability. Along these local bottlenecks, the road is an important connection between the city regions Zwolle/Kampen and Twente. To solve this problem, the N35 will be partly broadened and redirected. A new connection with the Kroesenallee will also be realised (Ministerie van Infrastructuur & Milieu, 2015B). The N35 has a long history and the project discussion dates back to the second half of the 20th century. After regional parties stepped in to contribute money to the project, the project went more easily. The route decision was taken in 2015. When the project entered the MIRT in 2010, the project was planned to be finished in 2014. Finally, the project was completed in 2018. The initial project budget was €45 million, later this was updated to €48 million. In the end, there was €2 million left. This means there was a relatively low budget increase of just 7%. There is a narrow project scope with safety measures and a diversion at Wijthmen with little additional integration measures (#4; #8). Residents were informed on the project by among others, several information meetings and newsletters. This relates to ‘consultation’, a mid-category of participation on Arnstein’s participation ladder (Arnstein, 1969). The residents of especially Wijthmen are pleased with the project, as the road is removed from the village and diverted to the south, which improved traffic safety and liveability. The project received 46 submitted opinions, of which 32 were submitted by individuals and neighbourhood associations (Rijkswaterstaat, 2015). There were 11 appeals of which 8 by individuals (Raad van State, 2016). However, residents and stakeholders near the diversion now deal with the nuisances. Figure 12 shows the average income per neighbourhood near the project.

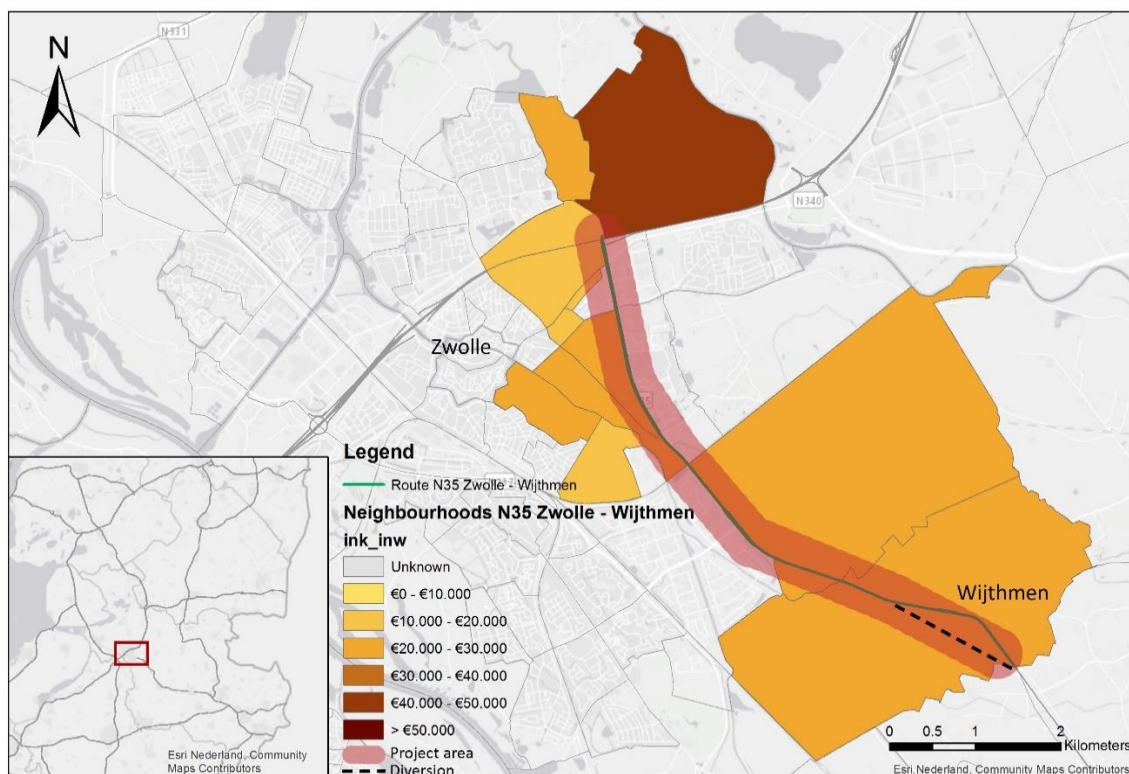


Figure 12. Project N35 Zwolle - Wijthmen

4.2.2 Time, money and scope change

This section discusses the results of the interviews focusing on what influenced the planning of a project in the qualitative research sample. It is shown what reasons were indicated by the interviewees to lead to delays, cost overruns and scope change of a project. In section 4.3 it is shown if this matches the literature.

Occasionally, a project does not get off the ground because there is not enough money. Sometimes a project is put on hold for years and its future is insecure. Occasionally, the project takes off when regional parties step in willing to pay a larger sum of the project costs (#1; #8; #9). In some cases when there is not enough money available for the project scope, austerity of project is applied (#13).

“Well, there are also things removed, because the government... It has been a pathetic project [N18 Varsseveld – Enschede] in The Hague I think. (...) So then they said in The Hague ‘make some cuts’. (...) That was quite bitter for the region, because they had to contribute extra money and then there were also things removed.” (#9).

However, a gap in the finances is not only solved by austerity, in the project A1/A28 Junction Hoevelaken they came up with another solution that involved the creativity of the market to integrate many wishes for the same budget. However, that did not work out as planned because the contractor was not able to realise the contracted scope, with all the wishes, for the budget they had available. (#3). The economic situation during the project tender also played a role in the project progress. For example, when the project tender took place during the economic crisis, contractors registered relatively low because they had little work, which is now different (#1). Still, oftentimes it is a sum of different factors that influence the planning of a project. There is either insufficient support for a project, insufficient money available insufficient political support or they cannot agree on the integration of a project (#6). On top of that, the capacity within Rijkswaterstaat plays a role as well (#10).

Different interviewees emphasized that it is hard to conclude whether or not stakeholder are able to delay a project or if their involvement leads to cost overruns (#8). Interviewee 12 emphasized that bigger cost overruns are caused by technical issues which can cost many millions, while regional wishes are often a fraction of that sum. Additionally, public resistance is not likely to lead to the abolishment of a total project, but sometimes it can lead to minor scope changes. However, it could be hard to track these scope changes down in project reports, as interviewee 12 points out that these costs are labelled as ‘unforeseen’ (#12). It might be possible that wishes from residents influence the planning process via regional stakeholders which they take with them in negotiations (#13). Stakeholder management and participation take time in a project. It is hard to see if this causes less opposition and protests later in the projects that possibly lead to delays compared to a situation without stakeholder management and participation (#6).

A direct relation of stakeholders being able to substantially delay a project, to increase costs or to cause a major scope change did not come forward. This is also not supported by the results of the statistical and spatial analysis. However, according to the interviewees, stakeholder involvement could lead to minor scope change and small delays in weeks or months. The fact that this is not shown in the quantitative data could be a result of the delays being measured in years and the cost overruns being too small relative to the total costs to show a significant relationship.

4.2.3 Role of socioeconomic status on the participation and planning process

The interviews showed how the interviewees experience income and education to influence the participation and planning process. Different factors were found to play a role. One factor, mentioned

by the interviewees to have an influence on the project is whether stakeholders are well-informed (on legal rights) and thus better equipped to participate, which changes the discussion. (#5; #6).

“Yes, and if a higher educated person knows the content, executes counter-research and substantiates that, you will need more time to answer that in a good way than someone that just calls something. It differs, absolutely.” (#6).

On top of that, several interviewees referenced to the political playing field or making use of politicians by stakeholders to influence a project or make their opinions being heard. For example, via the municipal alderman or members of the municipal council (#6; #8). This closely relates to the network of stakeholders. So, when stakeholders have short lines with an alderman for example, they can exert an influence on the project. This does not necessarily change the outcomes, but at least sets the agenda.

“Especially those that politically are involved in a party or have connections in the municipal council, if they want, they are in the game. And it is also always my experience, the moment that in a municipal council a question is asked by an alderman about a Rijkswaterstaat project that the alderman itself is not responsible for, always specific forces come into play. (...) from that dynamics there is an eye for objection. That does not mean it will change the outcome. (...) you have to better explain and defend why you do or do not do something.” (#4).

People that have the right network and do have an interest in a project are more likely to participate in for example focus groups and workshops. However, higher participation of residents with higher socioeconomic status due to a stronger sense of attachment and investment in the neighbourhood was not found. Additionally, residents are more likely to get in the conversation and write letters as they are more assertive and empowered. This way, they know how to organize resistance (#7; #8).

“Well like this, look, someone that is more assertive and used to, more a conversationalist, or maybe is smarter, they are more likely on an information meeting to ask us many questions.” (#1).

A small group, though not necessarily with a high socioeconomic status, is able to have a big impact on a project. In line with section 2.2.5 the media can play a unique role in the planning process, playing out community protest. Opponents, for example, pressurize the will step to the media or Ombudsman (#3), print big advertisements in newspapers (#1) or Dutch celebrities living in the area execute their influence on television (#12)

To sum up, it was shown that education and income of stakeholders play a role in the participation and planning process in different ways. When stakeholders are higher educated or have a higher income, they are more likely to be well informed (on their legal rights); they possibly have a better network with short lines to local politics; they are more likely to have a certain interest in the project which enhances participation, they are more assertive and empowered (mondigheid) which changes the discussion and can set the agenda of a project.

4.2.4 Public response

Oftentimes, resistance of stakeholders is caused by opposing or conflicting interests on a project. This could concern the integration of a project or if the project was wanted at all. Often this is due to nuisance and NIMBY sentiments, or stakeholders do not feel taken seriously in their objections.

“If we want to diverse it [the A9 Badhoevedorp] and you don’t, then your interests are really opposing.” (#1)

According to different interviewees, NIMBY plays a role in every project, but the quantity differs per project (#3). On top of that, it is emphasized that NIMBY is often unfairly regarded to be negative, as the influence of a project on residents often is not pleasant and should not be downplayed (#2; #5). The sentiments of residents should be taken seriously and a 'human' approach can help (see section 4.2.6 on communication).

"If you do it in our backyard, then please do it as decent as possible. NIMBY is always regarded very negative, but if you have a farm from 1700 or 1800 or you have been living in this area for generations and you want to see you children grow up there and all of a sudden the government shows up and says they want to construct a 2x3 highway through your backyard, please give me a part of your property, but you will be in the mess for six or seven years. Then, I think NIMBY is a very logical response (...) it is not selfish." (#2)

Interviewee 13 emphasized that NIMBY starts to play a role when project plans become concrete and feel that they do not have a grip on the situation. This is in line with the findings in section 2.2.5. Sometimes people are motivated to actively promote a project to solve a problem or nuisance and increase liveability in their area, for example to improve traffic safety in a village. In all the projects in the qualitative sample this came forward. For example, the A9 Diversion Badhoevedorp where residents protested for the removal of the highway out of the Badhoevedorp centre (#1), the A28/A1 Junction Hoevelaken where residents were really in favour of the project and want it to speed up as it increases traffic safety and lowers rat-running traffic in their area (#7) and the N18 Varsseveld – Enschede to improve traffic safety in different residential areas along the route (#9). However, the A28/A1 Junction Hoevelaken project deals with different delays and leads to dissatisfaction of local residents who are in favour of the project for safety and liveability reasons.

Nuisance of a road can also lead to movements in favour of a project (e.g. Badhoevedorp). Nuisance due to project construction during the realisation phase can lead to dissatisfaction of residents. Interviewee 12 emphasized that it is important to be transparent to residents on the nuisance they deal and will have to deal with in the future (see section 4.2.6), when this is not done sufficiently, it can decrease the public support of a project. One way to ensure as little nuisance as possible during construction is to stimulate this during the project tender, as was done at the project Badhoevedorp – Holendrecht where the piles are now screwed instead of the regular procedure (#12) or like the N18 Varsseveld – Enschede where little nuisance for the stakeholders was a demand from the region, which worked out well (#9).

The integration of relatively small stakeholder wishes can potentially increase support for a project, like a bicycle tunnel, walking bridge or decisions on the location and types of trees (#1; #3). These kinds of wishes are tangible for people, they are not interested in the widening of the highway (see section 4.2.6; #12). Interviewee 13 pointed out that that it is important to integrate a project in the landscape in an esthetical way, like the weirs and locks at the Nederrijn that after local pressure were made to fit better in the historical landscape.

"It could one, make it better, because with infrastructure, you impact (...) the local living environment of people for tens, hundreds of years, so you have to make it nice, I think and that can cost something." (#13)

However, when a wish like that cannot be integrated, this can lead to feelings of disappointment in the local community, like was the case with the walking bridge at the N35 in Wijthmen (see section 4.2.6). On top of that, interviewee 8 pointed out that it is hard to prove whether integration of wishes or minor adjustments leads to more project support (#8). Interviewee 1 added that you cannot ask every resident for their wishes and what they think, because then your project will never start.

In a project, typically various measures are taken to reduce nuisance for the area, for example sound screens, sound-absorbing asphalt or facade insulation. Sometimes non-statutory measures are taken on top of the required measures (see section 2.4.2). In different cases residents would like to have a higher sound screen, more sound screens or aesthetically more pleasing sound screens which are more expensive. In principle, regional stakeholders pay for the additional measure (#3; #8). Interviewee 13 emphasized that this is the case as otherwise the situation would become uncontrollable, setting precedents, while there is not an infinite budget for infrastructure. Still, regional parties sometimes feel that it is a national road, so in first instance it should be the national government's responsibility (#8).

It is the question whether there are spatial differences within the granting of these wishes or project integration between different neighbourhoods or municipalities. Different interviewees thought that often the stakeholder that pays most gets most non-statutory measures, granted wishes or best project integration (#3; #12). Still, interviewee 12 underlined that smaller municipalities with lower budgets can get things done, like integration of non-statutory measures, as they use their size for negotiation compared to the bigger municipalities that get better integration, while the smaller municipalities barely benefit of a project and suffer the negative externalities (#12). Interviewee 13 stated that smaller municipalities are also able to get things done due to the quality of aldermen and administration, for example with a lobby at the Tweede Kamer (Dutch Parliament).

"So, a small municipality, if they do it smart, they can do it just as well, but you have to choose good administrators." (#13).

Interviewee 12 added that sometimes residents obstruct in such a way that sometimes the response is 'okay then' and they get more non-statutory measures. However, it also works the other way around when there are sympathetic stakeholders that maintain a good relationship with the project that in that way accomplish more (#12). Sometimes, stakeholders unite in a public movement or protest group to oppose to a project or advocate in favour of a specific design or project integration. Their opposition can lead to scope change, better project integration or additional sound measures (#2; #3; #6). However, often there are also individual stakeholder that resist to a project as it would hurt their business for example (#4, #5). Land purchase or expropriation can lead to resistance as well. Sometimes stakeholder have had their business or house for generation at that place and feel disadvantaged by a project. The interviewees emphasize that it is important to treat this carefully and be fair in this process (see section 4.2.6).

Nature protection can also be used as an argument to slow down a project or influence the sentiment of a project (#3; #5). In the Gaasperdammerweg project (see section 1.1) a strong nature protection lobby changed the sentiment of a project and eventually the scope (#12). However, to appeal a project based on nature protection, stakeholder should have a direct interest nowadays (see section 2.4.1).

Interviewee 3 argued that the mentality or background of the residents in a project influences their response (#3). Interviewee 12 states that in the Gaasperdammerweg project population groups with another background had a more indifferent or passive attitude concerning the project. This relates to the influence of socioeconomic status on a project (see section 4.2.3).

"In Southeast (...) most people undergo it passively and in Laren people do not undergo it passively at all. They are more likely to come in action to change or stop plans." (#12)

Residents have the right to submit an opinion or eventually appeal to the Raad van State (the Dutch Council of State and the highest court regarding public administrative law) to a project (see section 2.4.2.). In a submitted opinion, residents can express their opinion on a project and whether they agree or not with it or specific elements of a project and suggest adjustments. In this way, the number of

submitted opinions can be regarded as a measure for project support (#7). Different interviewees referred to submitted opinions and appeals in relation to the size of a project, with the expectation that a larger project leads to more submitted opinions (#2; #4; #8). Interviewee 7 added that controversial projects with much resistance beforehand influences the number of submitted opinions as well. Different interviewees emphasized that stakeholder management and participation influences the number of submitted opinions and appeals, but it is hard to show as you never know what the number would have been without the stakeholder management efforts (see section 4.2.2). On the other hand, interviewee 2 stated that it is possible that stakeholders are satisfied with project organisation and stakeholder management, they just do not agree with the project.

“Not everyone is happy with the project, but people are happy with us.” (#2)

Thus, based on the interviews, different factors prove to influence how stakeholders respond to a project. It came forward that NIMBY sentiments are often present in a project, which goes together with nuisance of project construction or the end product of a project. It is important to take this seriously, as otherwise it could decrease project support. On the other hand, sometimes stakeholders favour a project as the project would solve safety issues or increase liveability. Integration of small, local wishes from stakeholders could enhance satisfaction, unfortunately sometimes it is not possible to integrate for example additional (non-statutory) sound measures due to costs. Also, the background of people influences how they deal with a project. Stakeholders can voice their opinion and views of a project during the formal consultation process, but also officially via a submitted opinion or appeal to the Raad van State, often this is a measure for project satisfaction.

4.2.5 Stakeholder participation

Within Dutch infrastructure projects, stakeholder involvement is required (see section 2.4). Stakeholder involvement would supposedly increase stakeholder satisfaction and support. However, stakeholder management and participation and its form differ per project and over time.

The exploration and plan study phase of the qualitative project sample projects took place five or even twenty years ago. During this time, the interviewees think there was another zeitgeist at Rijkswaterstaat concerning stakeholder management during that period of time (#1; #11; #13). Society constantly changes and people increasingly want to be involved. Progress was made and adjustments were made in stakeholder management, communication to residents and participation with more stakeholder involvement.

“It is an old way of thinking to presume that as a government you can force a certain connection, it does not deliver quality. You actually want to choose a solution together, not only creating support but also a better solution.” (#2)

More stakeholder involvement would not only lead to better project quality, but also to higher support for a project, with possibly a quicker project (see section 4.2.2) and fewer appeals and submitted opinions as a result (see section 4.2.4). If people are and feel more involved, in different planning stages, this possibly heightens support. However, interviewee 13 differentiates between public support (draagvlak) and understanding (begrip) for a project. In his view, support does not increase that much, there will always be people opposing the project, you cannot change that. With stakeholder management, you at least try to foster understanding (#13).

In some cases, stakeholders are involved in the form of co-design sessions where they can think along with the project organisation on the design and project integration, which was done in the Blankenburgverbinding project with different stakeholder groups (#2) or involve the residents in the

choice for the final alternative (#9). However, interviewee 1 emphasized that you can never involve every resident, because then a project will never take off (#1).

Stakeholders are also involved during construction, for example with different activities, like bus tours and walking and cycling on the new road before cars are allowed or 'the key to the new road' in Badhoevedorp (#1; #10; #11). And when the project is finished, it is important to celebrate it not only with the high administrators, but also with the residents.

"There is always a celebration, not only a bobo from Rijkswaterstaat and the province that cut a ribbon, but also the residents are involved, they get a drink as well and can speak so to say." (#10)

Many interviewees emphasize the importance of starting up front with participation and good communication. Repeatedly explain to the stakeholders what is going on, and what are the plans, so people feel heard and are heard (#11; #13). One way to integrate stakeholder management up front is to implement satisfied stakeholders as a criterium in the tender to ensure good stakeholder management later on. On top of that, creating the project scope together with different stakeholders up front could prevent unexpected costs later in a project (#1).

"At SAA we have from the beginning in the plan study in close cooperation with all municipalities established the scope. We actually did it together, whereby we did not have to add a variety of expensive wishes along the ride." (#12)

4.2.6 (Just) stakeholder management as a mitigating factor

This study researches the relationship between socioeconomic status of local residents and the planning process. Within this relationship, stakeholder management and participation are viewed as a mitigating factor in this relation. There are differences in socioeconomic status and this influences a project in several ways (see section 4.2.3). These differences can be mitigated with stakeholder management and participation to ensure a just planning process and outcome. To ensure just stakeholder management and participation, it was found that three factors must be taken into account: fairness, inclusiveness and communication. These factors build upon the elements of justice in the participation process as described in section 2.1.2.

Fairness

Different interviewees pointed out different ways of how fairness and justice play a role within stakeholder management. Sometimes, stakeholders feel that they are double hit by the construction of a project (see section 2.1.2). It feels unfair because their needs are sacrificed for the greater good. This played a role during the planning of the Blankenburgverbinding. On the north bank Vlaardingen felt disadvantaged, because shortly before the A4 Delft – Schiedam was already constructed there (#2). On the south bank, Rozenburg felt that they should have had an additional connection for a long time due to safety reasons. They feel that it is ridiculous that they should pay toll to use the new connection. (#6). But also, in other ways stakeholders experience a project negatively as it could hurt their business. In the N18 Varsseveld – Enschede project, a historical railroad put up a fight, because in the past their route had to be shortened due to the construction of the A35, and they feared that this would happen again (#9).

In stakeholder management, sometimes land purchase and expropriation are inevitable. Sometimes residents feel disadvantaged by the outcomes. It is important in stakeholder management to keep an eye on the different situations and be in good contact with the concerned stakeholders. Sometimes stakeholders are hit hard by land purchase or expropriation. It should be shown how the decision was made and that all formal steps are taken in line with the law. (#1; #5). Sometimes, come to a just solution project and stakeholder managers feel it is good to do more than is lawfully needed.

“You are going to hit individuals and sometimes family property of hundreds of years. So, the most just policy to do that is without hurting individuals and when you hurt you fully compensate. (...) In some cases, I think you have to offer more. (...) but there is so much subjective grief underneath that, that we then thought, and the land purchasers as well, this is too simplistic. So, in that sense we tried to build a road with as little pain as possible and if it hurt it is compensated well.” (#9)

The project tries to take all interests into consideration, but still this does not eliminate nuisances as a result of the project. Interviewee 5 emphasized that when everything is done in line with legislation and stakeholders’ interests are considered, it does not necessarily make people happy with a project in their backyard (#5). In some cases, residents lawfully have no rights, but still experience nuisance due to construction of a project.

“Are you very close to the route, then you are bought out. Are you further away from the route, then you will maybe get facade insulation or thicker windows, maybe a sound screen. But maybe you are more far away from the road and then you get nothing, but you do hear it, because there used to be cows there and now there is a road. So, concerning legislation you do not have a right to something, but still you experience increased nuisance. (#10)

A fair distribution of costs and benefits of a project was also mentioned by different interviewees. Among others, concerning the relation between regional stakeholders and the government. The N18 was financed for almost 50% by the regional stakeholders. The N35 was financed for over 50% by regional stakeholders. It can be doubted if this is fair, as it is not the normal policy for national roads.

“Within the Provinciale Staten this led to discussions, because it [the N35] is of course a national road, and politically in Zwolle they say that it is a national road, so the Dutch government has to pay, at least the bigger share. However, in this case they decided as province to pay around 60% to get the project on the agenda.” (#4)

The distribution of costs within a project concerns local residents as well. For example, the N35, here the local residents wanted to sustain a certain walking route crossing the former N35. By the construction of the new N35 it was no longer possible to cross the road at that point, so residents plead for a small bridge over the road to sustain the route, but this wish was never granted. At the end of the project, it turned out that there was money left. This caused some irritation with the residents, because they always wished for a bridge for €1 or €2 million to sustain their walking route (#4). However, this was not possible in the end due to political arrangements. The money that was left at the end of the project would be invested in other parts of the N35 between Wijthmen and Nijverdal.

Additionally, the distribution of costs and compensation within a project can also lead to different feelings for stakeholders. For example, at the Blankenburgverbinding project:

“There were also compensation measures taken commissioned by the Tweede Kamer, de resolution Kupers, 25 million of which 7 or 8 million goes to the Rozenburg side, the rest all goes to Vlaardingen. Of course, that has been a very political game (...) I don’t know if that was in proportion. But how you must divide, I don’t know.” (#14)

Inclusiveness

In the interviews, it came forward that it is important in a project to include stakeholders and should have access to information on a project.

“And you have to give them access and help them with it, you have to give them information so that they can defend their interest (...) to object at the Raad van State. I think that is fair.” (#3)

Different interviewees (among others interviewee #1, #3 and #10) emphasize that it is important to organize information meetings on a time slot that fits people's lives and organize it on a place that is accessible for many, for example in different places along the project route and in local neighbourhood centres. Residents can also get additional information in those neighbourhood or village centres via project flyers and leaflets.

Thus, it is important that all stakeholders have access to information concerning the project. Accessibility plays a role. It was argued that residents do not have to travel far to be informed. However, getting additional information could in some cases lead to difficulties, as was explained by the deputy chairman of the Rozenburg area committee.

"No longer official papers are here (in Rozenburg, ed.) available for perusal, concerning those thick books with project plans (...) those documents lie at the Rotterdam town hall for perusal. Well, inhabitants of Rozenburg, especially the elderly, cannot easily go there with public transport, you lose a whole day and then it is only the question if the right papers are available. So yes, it is regrettable that that is not possible anymore, then again you see the distance to citizens, it is further away..." (#14)

In citizen participation, it is important to include the whole community to get a representative view, as opinions are often based on views of people attending the information meetings (Diduck & Sinclair, 2002; Hamersma, 2017; Mansfield et al., 2001; Woltjer, 2000, see 2.2.1). However, the interviewees stated that often a selective group of residents participates in planning processes, interviewee 12 names it the 'participation elite' that likes to participate (#12), it is complicated to include residents next to this group that has time to read the plans and thinks something about it (#7).

"In general, the people that attend information evenings, that attend a session, are in general higher education, often male and often older than 60." (#2)

However, this view can be nuanced. According to interviewee 4, other people next to the 'participation elite' are involved as well, like fathers with children or stay-at-home-mums, people from different backgrounds, and in this way, the information meetings reflect society (#4; #10).

Lack of diversity in public involvement is an undesirable situation. Not only because Just participation holds being able to voice opinions and substantive influence (Smits & Van der Kroon, 2017), but also because in line with principles for a just city, it is important that citizens have a right to participate in the creation of a city (Lefebvre, 1996; Marcuse et al., 2009). On top of that, Fainstein (2014) argues that democracy, diversity and equity are three principles that underlie urban justice (see section 2.1.1.). This is emphasized by interviewee 12:

"I really find that important myself, because I think that we at Rijkswaterstaat, we work for the society, so you have to broadly involve society. (...) The better the plan for more people, the better I have done my job." (#12)

However, interviewee 13 pointed out that it is not always practically possible to involve everyone, the process must be customized to fit this. On the other hand, striving for a representative audience you may not get the desired result as noted by interviewee 2. You should reach different stakeholders with different tools because you will never get a representative group. You get a representative group by mid-range, which is not interesting if you want to get the maximum out of it (#2).

Interviewee 12 admitted that it can be difficult to include a wide range of stakeholders next to the selective group that does participate. In the SAA Gaasperdammerweg project, the stakeholder management team tried to fit their communication to the needs and habits of population groups. For example, by featuring in a live radio broadcast that many Antillean and Surinam residents listened to or just go by houses in person to inform residents on the construction work. Other interviewees (a.o.

#8, #9, #10 and #13) pointed out that there is a difference between cities and smaller towns, in smaller communities it could be easier to include a representative and diverse group of residents because the network is smaller and people know each other better.

“If it are really big groups, then you cannot involve everyone in design ateliers or things like that, so you have to look at representativity. (...) If it is really urban it can get complicated, there is less cohesion between the people. (...) The smaller the scale, the easier you give people the feeling that they are involved. So it is customization. (#13)

Interviewee 3 stated that within information or participation meetings it is important that people can feel at ease and feel free to speak. At the Blankenburgverbinding project they made different stakeholder groups but did not mix for example residents with civil servants as this would lead to an unbalanced situation and processes within a group (#2).

One reason for residents to not be involved in information meetings or participation mentioned by many interviewees (#1, #2, #3, #5) is the concreteness of a project. The level of abstraction influences how people experience possible nuisance and their interest in a project. It is hard to imagine the effects of a drawing on a map or amount predicted decibels on your own situation, while professionals are trained to do this. In this way, it decreases the likeliness to participate or submit an opinion for example. However, when a project becomes concrete due to construction for example, it is too late as the route decision is already final.

“Another dilemma (...) is that actually with participation you are lagging behind. People are able to understand how it influences them, how they have to deal with it, the moment it is concrete. The moment it is concrete, many things are already decided upon.” (#2)

To solve this, project teams try to make these topics tangible for the people. For example, with interactive websites on which you can compare the former and new situation or a special installation in which you can actually hear the difference in sound for the old and new situation. Interviewee 11 suggested creating maps that are relatable for residents with things they know from their area, like indicating the local bakery or butcher, so they can imagine what it is about. On the other hand, interviewee 12 emphasized that the topic itself is not relatable for people. The difference between four of five lanes is not interesting, but the placement of a new biking path or local park is. Rijkswaterstaat did not have a focus on these issues, according to the interviewee, but if you want to include those people as well, you have to talk about the issues that they find relevant (#12).

Communication

Many interviewees mentioned that communication is key to a just and fair participation process, people should know what is going on and how that impacts their situation and if they want to they can voice their thoughts or submit an opinion. Thus, ample communication to stakeholders with a big role for transparency is key.

“A fair participation process, I think, means that you broadly communicate to everyone in the area of influence or is a relevant stakeholder, indicate that you are entering a participation process and invite everybody to join that process and that you treat every input the same way. Subsequently, when you are making choices communicate again what is done with their comments. Argument why certain choices are made and why a choice was made for the final design, how you came to that.” (#6)

It was emphasized in the interviews that it is necessary to regularly communicate to stakeholders, also when there is little new information, because otherwise people forget about the project and you have to invest again to get them on board (#4). Additionally, transparency in communication to stakeholders is important due to different reasons, according to the interviewees. Among others, because the projects are executed with tax money, so the project organisation has to account where the money is

destined for. Secondly, when residents think the project will be executed in a certain way, but in the end that does not go through, this leads to frustration.

“When a citizen says ‘we want golden street lightning’ and subsequently gets feedback that they do not get golden street lightning and are upset about that, yes then people are disappointed.” (#14)

However, according to interviewee 10, feedback to residents and integration of local wishes and demands in the contract is embedded in the Rijkswaterstaat procedures (#10). Subsequently, different interviewees (#1, #2, #3, #8) indicated that within communication to stakeholders, it is essential to point out what they are able to influence and what not, as well in decisions and design. Furthermore, when decisions are taken it should be explained why and this specific decision is taken and why a certain design is the best option (#8).

The transparency by the project organisation is also valued by stakeholders. They appreciate it when the project organisation talks to the residents in a normal, understandable way without jargon and not to prevaricate (#11; #14). Openness about the project's progress and the nuisance can also heighten understanding of the residents.

“What you notice, if you are on the platform and the train does not come, you keep on getting more angry, but if the sign states that the train will arrive in 10 minutes, you think ‘shit’, but that’s it. It works the same way with nuisance, we for example placed a big sign that showed every day how many piles to go. So, it counted down. Those sort of things turned out to be super important for the people. And also, not to downplay (the nuisance due to construction, ed.), so be really clear ‘this will be intense’.” (#12).

One interviewee underlined that it is important to be transparent to all people, including the groups that are more vulnerable, especially as a counterbalance to Rijkswaterstaat. For example, support people professionally or give them help, to make the discussion as equivalent as possible. Otherwise, when people have money, knowledge and a higher education are in an easier position, you cannot change that, but you can try to balance it (#13). Different interviewees indicated that they must be careful in their communication to stakeholders. A promise to one stakeholder can set precedents, which can complicate the project (#1; #9; #13).

“Even though we tried to (...) do something, but you have to watch out with that, because it can create many expectations for others. You must watch out for setting precedents. It is a very small community [along the N18 Varsseveld – Enschede]. If you promise one person a tree, the next one will show up the next day.” (#9)

Thus, within communication to stakeholders it is key to be transparent, but also the attitude of the project organisation influences how stakeholders perceive the project, it is important to be really open to people (#3). However, sometimes the project organisation can be hesitant or alert to make mistakes or promise things that cannot be fulfilled. Interviewee 13 points out that project and stakeholder managers can end up in ‘tricky’ situations by making promises they cannot fulfil. This is mentioned by interviewee 11 as well. Civil servants would be hesitant as they feel they could get duped by the residents that are in an alert position. For stakeholders, it is significant that they feel heard by the project organisation. They know what is done with their suggestions and feedback (transparency), but also feel that their input was valued and taken seriously. This is in line with the critique of the Ombudsman on the planning process (see section 1.1), as otherwise residents and local stakeholders can feel insufficiently heard.

“Participation is just participation I always say. (...) Furthermore, you have to wait what happens with it, most of the time nothing.” (#11)

When communication is done right, an open attitude in which the project listens to the stakeholders, can increase the understanding for a project, preferably with a personal approach.

“The fact that you listen, take people seriously and seriously look to what you can do with their wishes, that makes that the project has a face and is not only that unreachable, annoying government at work.”
(#12)

On top of that, as mentioned earlier, it is key to inform a diverse group of stakeholders on the project. To ensure this, different ways of communication are used to reach different population groups in a way that fits their needs, for example via newsletters, social media, information meetings or the local newspaper (#2; #6)

4.3 Relating justice and participation

This section relates information on submitted opinions and appeals in the qualitative sample to the project expectations. Subsequently, the fourth and fifth sub-questions are answered.

4.3.1 Qualitative data analysis

Both the statistical and spatial analysis were based on numbers that came forward out of the MIRT document study. Additionally, interesting numbers could be calculated based on the 30 projects in the quantitative sample.

Concerning time, the average length of a project is approximately 11 years, measured from the moment a project entered and left the MIRT project overview after construction. This number is smaller than the number of years found by Elverding at that time (Elverding et al., 2008). This is in line with the recommendations of Elverding as well, suggesting that public involvement could help to reduce delays in a project. The time a project spends in the exploration and plan study phase and the moment the definite route decision is taken are viewed as a measure of administrative delay. On average a project lasts 66,69% of the total project time in the exploration and planning phase. The definite route decision is on average taken at 64,16% of the total project time. The average delay index is 100,06%. Considering budget, the average project budget is €670,4 million. The average budget overrun is €137,27 million and the average overrun index is 129,49%. Exact half of the projects underwent major scope change, based to the MIRT project overviews.

The interviews gave a deeper insight into how socioeconomic status influences project planning and how stakeholder management and public involvement influence this relationship. One aim of the qualitative research was to look deeper into the stakeholder management and participation and public response of the qualitative project sample. On top of that, the qualitative project sample provides anecdotal evidence on how socioeconomic status, project planning and stakeholder management cohere in these projects and meet the research expectations (see section 2.5.1).

The project descriptions in section 4.1 show different details on project time, money, scope, socioeconomic status and resistance. The spatial analysis related socioeconomic status to project planning. Resistance, measured in submitted opinions and appeals can also give insight in relation to the project expectations. It is expected, in line with Taylor (2013) that projects in which the surrounding neighbourhoods have a higher socioeconomic status deal with higher numbers of submitted opinions and appeals.

It is expected that both the Blankenburgverbinding and N35 Zwolle – Wijthmen projects show little submitted opinions and appeals at the Raad van State. The other way around for the A9 Diversion Badhoevedorp and A28/A1 Junction Hoewelaken. In general, there appear to be little differences between the submitted opinions and appeals between the projects. Actually, the projects expecting little submitted opinions received more than the project Badhoevedorp which was expected to receive

a relative high number of submitted opinions. The project A28/A1 cannot be judged as it is unknown how many individuals submitted an opinion out of the total of 277. The project with the highest number of appeals was the N18 Varsseveld – Enschede, which was not expected to stand out based on socioeconomic status of the nearby neighbourhoods. This could be explained by the length of the route and high number of land purchases. One of the concerned interviewees emphasizes that they experienced no difference between the residents of the different towns (#10).

Thus, the research expectations cannot be confirmed when looking into the numbers of submitted opinions in the qualitative project sample. There are little differences between the submitted opinions and appeals between the projects and the projects expecting little submitted opinions received more than the project one of the projects expecting to receive a relatively high number. Whether a project is desired or not by residents could be a better predictor for submitted opinions and appeals, as Aeschbacher (2006) and Hamersma et al. (2014) argued that when a project is considered to be undesirable, residents may decide to protest. Still, it is hard to base conclusions on these facts, as numbers can be distorted by project size. Also, to conclude whether socioeconomic status influences the number of submitted opinions and appeals it is important to know the socioeconomic status of the individuals that submitted the opinions and appealed, but that cannot be tracked down.

4.3.2 Justice in infrastructure project and the influence of participation and stakeholder management

Section 2.6.1 answered the research question how social justice relates to infrastructure project planning and how this is ensured in the participation process. In this section the fourth sub-question is answered: How just are road infrastructure projects and how may participation processes and stakeholder management influence this? To assess how just road infrastructure projects are, the interpretation of social justice out from section 2.1.1 was taken. This means that social justice in relation to project planning is understood as stakeholders being able to participate in activities impacting their abilities and daily living environment. Relating this to the qualitative findings, it was found that the formal procedures are designed to make it possible for all stakeholders to participate. However, it came forward that in many projects a ‘participation elite’ is present. Projects should aim to broadly involve stakeholder groups, adjusting communication to their needs. On top of that, socioeconomic status influences in how far residents are able to participate in the process impacting their abilities and daily living environment. As laid out in section 4.2.3, it is easier for residents with a higher socioeconomic status to exert an influence on a project, meaning an unjust situation for residents with a lower socioeconomic status.

Also, social justice encompasses “the just distribution of what is owned, gained and lost by the members of a society” (Beyazit, 2011, p.117). This holds that socioeconomic status does not affect a just distribution of what residents own, gain or lose due to a project. However, it was found in sections 4.2.2 and 4.2.3 that socioeconomic status can, in some cases, lead to minor scope changes in a project and more integration measures. If this means that residents with a lower socioeconomic status suffer a worse project integration and more nuisance, this will mean an unjust distribution of what is owned, gained or lost by residents due to a project. Still, all residents are provided with a legally required minimum, so it can be discussed based on other theories of justice if this is an unjust situation.

4.3.3 Just participation and stakeholder management

Section 4.2.6 discussed how stakeholder management and participation mitigate the relationship between socioeconomic status and the planning process. In this section, the fifth sub-question is answered: Which factors are important in the participation process and stakeholder management in relation to social justice?

Section 4.2.3 looked into how socioeconomic status influences project planning. The distribution of socioeconomic status relates to benefits and disadvantages as a result, influencing justice. It was found that stakeholders with a higher socioeconomic status are well-informed (on legal rights) and are better equipped to participate. Among others, they better understand formal communication and know how to execute counter-research. This changes the discussion. On top of that, socioeconomic status plays a role in relation to politics and the network of stakeholders. When a stakeholder has short lines with civil servants or an alderman for example, they can exert influence on a project or at least set the agenda. Residents with the right network and a high interest in the project are more likely to participate. They are also more assertive and empowered. In this way, they get into the conversation and write letters. However, a small group can have a big impact on a project, among others threatening to go to the media or Ombudsman.

Thus, stakeholders with a higher socioeconomic status impact a project in different ways, influencing stakeholder management and participation. Section 4.2.2 investigated the reasons for delays, cost overruns and scope change in infrastructure projects. It was found that it is not likely that stakeholders are able to substantially delay a project or cause cost overruns. Public resistance is also not likely to lead to the abolishment of a project, but it can lead to minor scope changes and delays in weeks or months. Stakeholder wishes are expressed, and find their way to a project, via regional stakeholders like the municipality. Additionally, stakeholder management and participation take time in a project. It is hard to see if this causes less opposition and protests later in the projects that possibly lead to delays compared to a situation without stakeholder management and participation.

To ensure social justice for the outcome of the planning process and within stakeholder management and participation, three elements were found to be key: fairness, inclusiveness and communication. Fairness and justice play a role in different ways. In some cases, stakeholders feel double hit by a project. It feels unfair because their needs are sacrificed for the greater good. In cases of land purchase or expropriation it is important to keep an eye on the individual situations and it should be shown how the decision was made and that all formal steps are taken in line with the law. Sometimes it is good to do more than lawfully required. In a few cases, stakeholders experience a project outcome to be unfair as they live too far away from a project to have a right for compensation measures, but they still experience (visual) nuisance. On top of that, a few infrastructure projects were financed for more than 50% by regional stakeholders. They experience this to be an undesirable situation as the project concerns a national road. Within a project, the distribution of costs plays a role as well. For example, as compensation between regional parties or for the integration of local wishes.

Inclusiveness is another important factor within stakeholder management and participation to ensure social justice. All stakeholders should have access to information and be able to defend their interests. Subsequently, information meetings should be accessible for residents in both time and location. To get a representative view, the whole community should be included. However, often a 'participation elite' is present. This group is often higher educated, male, relatively old and has time to read the plans and participate. Next to this view, it was found that diverse stakeholders show up at information meetings. At the same time, it is not always practically possible to involve all stakeholders. To include different groups next to the 'participation elite' it is important to fit communication to their needs. Additionally, the abstraction level of a project when it is not yet constructed influences how residents experience possible nuisance and their interest in a project. This decreases their likeliness to actively participate. To solve this, project teams try to make these topics tangible for the people.

Finally, communication is key to include a diverse group of stakeholders as all residents have the right to know how a project will impact their interests. To this end, communication should be ample and regular. Subsequently, transparency is key as projects are paid with tax money and false expectations or setting precedents can lead to frustration of stakeholders. This way of working is integrated into the Rijkswaterstaat procedures, but it differs how project organisations tackle this. Openness about

project progress and nuisance can heighten the understanding of residents. The attitude of the project organisation also influences how stakeholders experience a project. It is important to be open to people and take their input seriously. Relating to inclusiveness, it is important to make use of different communication channels to reach a wide range of stakeholders.

5. Conclusion, discussion and recommendations

In this chapter, the sub-questions and the primary research question are answered and conclusions are drawn (see section 5.1). Subsequently, in section 5.2.1 the results of both the quantitative and qualitative analysis are discussed and interpreted in relation to the literature. In section 5.2.2 and 5.2.3 the research's limitations and implications are discussed. Suggestions for follow-up research are given in section 5.3. The chapter finishes with recommendations (section 5.4) and a reflection (section 5.5) on the study.

5.1 Conclusion

This study researched the question: How does the socioeconomic status of local residents relate to the planning of national road infrastructure projects in the Netherlands and what does this mean for participation? For this purpose, a quantitative and qualitative research was executed to investigate this relationship.

The first sub-question was: How does social justice relate to the planning of road infrastructure projects and how is this ensured in the participation process? Based on social justice literature (see section 2.1) residents have the right to participate in the planning process as it influences their abilities and daily living environment. The right to participate is ensured in Dutch procedures, but these are not directly related to theories of social justice. There is a gap between the implementation of the different procedures and how participants experience this. According to the National Ombudsman (Nationale Ombudsman, 2019) residents feel insufficiently heard and sometimes experience a hesitant attitude of civil servants. This also came forward in the qualitative findings (see section 4.2.5). Also, a skewed distribution of socioeconomic status in nearby neighbourhoods might create differences in resident's ability to influence the creation of their living environment.

The second sub-question was: What are reasons for infrastructure delays, cost overruns and quality changes in road infrastructure projects and how is dealt with this in the participation process? As came forward in the literature (see section 2.3.2) delays often happen during the administrative planning phase due to administrative inconsistencies, bustle and discussions. Cost overruns and delays also happen as plans are based on predictions of an unsure future, in which risks are often ignored. Additionally, increased complexity and sectoral legislation slow down decision-making. Overruns contribute to the dissatisfaction of stakeholders in project outcomes, but dissatisfaction of residents also possibly leads to resistance to a project and thus delays. Public involvement is ensured in different ways at certain moments in planning procedures and also adds to the 'administrative bustle' (see section 2.2 and 2.4). It was found in chapter four that the average project length in the quantitative sample was approximately 11 years. This is shorter than the periods found by Elverding at that time (Elverding et al., 2008). In recent years, emphasis on formal stakeholder consultation increased and it was implemented more intensively. Public involvement potentially leads to delays and cost overruns but could limit delays in a project as well preventing struggles in later stages of the project. Since projects take shorter periods of time since Elverding, this indicates that public involvement might lead to fewer delays or limits delays, but does not per se speed up decision-making.

Answering the third sub-question: How does the socioeconomic status of neighbourhoods relate to the planning of road infrastructure projects? Both the statistical analysis and spatial analysis showed that there is no significant evidence that the socioeconomic status of neighbourhoods influences the planning of infrastructure projects in the Netherlands. The research expectations do not hold. There are indications that in some cases socioeconomic status could influence whether a project stays within budget, but this relationship is negative, which opposes the research expectations. In the qualitative findings, it came forward that socioeconomic status influences participation and project planning in different ways (see section 4.2.3). Stakeholders with a higher socioeconomic status are more likely to

be well informed (on their legal rights); they possibly have a better network with short lines to local politics; they are more likely to have a certain interest in the project which enhances participation, they are more assertive and empowered (mondigheid) which changes the discussion and can set the agenda of a project. It is not likely that stakeholders are able to substantially delay a project, cause cost overruns or cause the abolishment of a project. It can lead to minor scope changes and small delays.

The fourth sub-question was as follows: How just are road infrastructure projects and how may participation processes and stakeholder management influence this? When understanding social justice as stakeholders being able to participate in activities impacting their abilities and daily living environment (see section 2.1), it was found that the formal procedures are designed to make it possible for all stakeholders to participate. In many projects, a 'participation elite' appears to be present and it seems to be easier for residents with higher socioeconomic status to exert an influence on a project. This could imply an unjust situation for residents with a lower socioeconomic status. This way, projects should aim to broadly involve stakeholder groups, adjusting communication to their needs. When understanding social justice as a just distribution of advantages and disadvantages caused by a project as laid out by Beyazit (2011; see section 2.1), socioeconomic status causing minor scope changes and better project integration implies an unjust distribution. In case residents with a lower socioeconomic status might endure a worse project integration and more nuisance, it can be argued that this implies an unjust situation.

The fifth and last sub-question was: Which factors are important in the participation process and stakeholder management in relation to social justice? To ensure social justice for the outcome of the planning process and within stakeholder management and participation, three elements were found to be key based on the interviews (see section 4.2.6): fairness, inclusiveness and communication. The way a project deals with (experienced) fairness of a project seems to play an important role. Transparent communication proves to be key. In some cases, it might be good to do more than lawfully required. Additionally, as all stakeholders have the right to participate and have access to information inclusiveness is essential. To prevent a 'participation elite' communication could be adjusted to fit the needs of different groups and measures could be taken to make a project less abstract for people. Finally, communication should be ample and transparent. At the same time, the attitude of the project should be open and all input should be taken seriously.

The primary research question was as follows: How does the socioeconomic status of local residents relate to the planning of national road infrastructure projects in the Netherlands and what does this mean for participation? Concluding, a direct influence of socioeconomic status on the planning of national road infrastructure projects in the Netherlands could not be shown based on both the quantitative and qualitative research. Yet, socioeconomic status plays a role in different ways in the planning process, as came forward in the interviews (see section 4.2.3). A just outcome should be ensured for all residents, as infrastructure projects influence their local environments on the long term. It would be an undesirable and unjust situation if residents would experience more nuisance or bad project integration due to a low socioeconomic status or on the opposite, if residents with a higher socioeconomic status experience a better project integration and less nuisance. To mitigate the influence of socioeconomic status, stakeholder management and participation should ensure the right of every resident to participate securing the process to be inclusive and fair with good and transparent communication.

5.2 Discussion

First, this section interprets the quantitative and qualitative findings and relates them to the conceptual model and literature. Additionally, the strengths and limitations of the study are pointed out. Finally, the implications of the study, both scientific and societal, are explained.

5.2.1 Interpreting the results

Relating the results to the conceptual model (section 2.5.2), the model shows in general well how socioeconomic relates to planning of infrastructure projects and how (formal) planning procedures and stakeholder management and participation influence this relationship. Nonetheless, some nuances could be added. First, legal action is shown as a separate component in the conceptual model, interviewees also emphasize the importance of appeals at the Raad van State, but in addition, submitted opinions as a response to the draft route decisions are an important moment of formal public response as well that precedes the legal action. Additionally, stakeholder management and public involvement play a role after the draft route decision as well. For example, during construction, when nuisance influences project satisfaction and communication with stakeholders influences residents' response. Increased monitoring and evaluating with residents during and after construction as part of stakeholder management could be a chance to balance the burdens and benefits of a project in light of social justice. Formal procedures, as shown in the conceptual model, are the basis of the planning process. However, the qualitative analysis showed that it might be key to, in some cases, do more to suit the situation to create a just outcome for stakeholders or do more than what is lawfully required to include stakeholders to create a better project. Still, in these instances, it is important to be aware of the influence of socioeconomic status. In the conceptual model, social justice came forward as a distribution of socioeconomic status which is input for the model. The model's output is the final project and how its burden and benefits are distributed. Next to input and output, social justice seems to come forward in other places in the conceptual model as well. 'Stakeholder management' and 'level of participation' relate to social justice as well, based on the qualitative findings. The way stakeholder management is executed and ways in which socioeconomic status is taken into account influences social justice. Subsequently, in the qualitative findings it came forward that 'public reaction' is influenced by socioeconomic status as well (see section 4.2.3).

The results of the quantitative and qualitative analysis partly comply with the theoretical framework, but also some contradictions or new insights were found. It was found, in line with the findings of Flyvberg et al. (2002), Kaliba et al. (2008) and Elverding (2008) that delays often occur before construction starts. Thus, in line with Elverding (2008), administrative bustle before a project and problems in different stages of decision-making lead to delays. One of the reasons found by Elverding, namely complex and sectoral legislation, was not indicated by the interviewees as a (main) cause for delays. Moreover, interviewee 12 emphasized that bigger cost overruns are caused by technical issues which can cost many millions of euros, while regional wishes are often a fraction of that sum. This relates to technical and administrative uncertainties in predicting the future of a project (Cantarelli et al., 2010). Additionally, this study suggests that there might be a skewed distribution of project budgets (see section 4.1.2), scope and importance between the Randstad and the rest of the Netherlands. Interviewee 9 pointed out that projects in the more peripheral regions of the Netherlands are considered to be of minor importance in the Randstad. Also, in the two more peripheral projects in the qualitative sample the region had to step in financially before the project took off (see section 4.2.2).

The qualitative results show, in line with the findings of Dear (1992) and Davis & Bali (2008), that residents who are well-informed (on legal rights) and thus better equipped to participate, change the discussion (see section 4.2.3). The findings of Taylor (2013) arguing that communities with higher economic interests and resources make more use of opposition channels and appeals is not directly supported by the interviews. On top of that, people that have the right network and do have an interest in a project are more likely to participate in for example focus groups, which is in agreement with the findings of Grillo et al. (2010). Subsequently, when stakeholders are hit by a project, they are more likely to participate or actively search information, confirming the findings of among others Hamersma

et al. (2016) and Olander & Landing (2005) (see section 2.2.5). This is a potential source of injustice, as those who participate are better heard.

It was found that, in line with the findings of Love et al. (2015), Zhen-Yu et al. (2008) and Skitmore & Ng (2003), delays in a project can lead to dissatisfaction of stakeholders. On top of that, when residents consider a project to be undesirable or when they have NIMBY sentiments, they are more likely to protest or oppose a project, which is in agreement with the findings of Aeschbacher (2006), Hamersma et al. (2014) and Wolsink (2006). In some projects, it was found that stakeholders considered (parts) of a project to be unfair, as they were 'double hit'. Stakeholders feel that they had to sacrifice their local landscape for the 'greater good'. They, for example, first have to deal with heavy industry and subsequently with windmills near their homes, as explained by Cowell (2010).

It became apparent that more stakeholder involvement would not only lead to better project quality, but also to higher support for a project, with possibly a quicker – or at least less delayed – project (see section 4.2.2) and fewer appeals and submitted opinions as a result (see section 4.2.5). This is in line with the findings of Li et al. (2012) and Boonstra & Boelens (2011). However, the interviewees emphasize that often a selective group of residents participates in planning processes, the 'participation elite'. Project and stakeholder managers struggle to include other residents, the so-called 'silent majority' (Hamersma et al., 2016) next to this group. Gross (2007) argued that perception on justice indicates the amount of conflict in a project, the qualitative analysis shows this as well as in one project opponents were not happy with the project itself, but they were happy with the communication and methods of the project organisation.

The findings of chapter 4 comply with the findings of Elverding (Elverding et al., 2008) and the recommendations of the National Ombudsman (2019) concerning the process of public involvement. It was emphasized that it is important to make a good start up front, include stakeholders early, to take their input seriously and manage expectations (see section 4.2.5). Nevertheless, the Ombudsman (Nationale Ombudsman, 2019) found that citizens feel frustrated and insufficiently heard. In the qualitative findings it came forward that this appears to be true in some projects, but is not always the case. Additionally, it was found that in some cases (land purchase or expropriation for instance) it is important to keep an eye on the individual situations and good to do more than lawfully required (see section 4.2.5). This relates to the findings of Rotmans (2018) who emphasized that there is a gap between the letter and the spirit of the Environment and Planning Act. The quality of decision-making is not only strictly legal, but also depends on how it is executed by civil servants in spirit of the law

According to the Code of Societal Participation (Ministerie van Infrastructuur & Waterstaat, 2014), public involvement is supposed to enhance quality and public support of a project, this is supported by the qualitative results. However, it was argued that in some cases you cannot heighten public support, but at least create understanding (see section 4.2.5). This is supported by Breukers and Wolsink (2007) as well. As stated in the Code, public involvement could also shorten the process, this is doubted by the interviewees as participation itself takes time and it is hard to estimate how long a project would take without it. The qualitative results show in line with the Code that the attitude of managers is important and input by stakeholders should be taken seriously. The first step in the Code (see section 2.4.1) encompasses taking into account all input of the public, the qualitative result support this, but in some cases the input of one resident with higher socioeconomic status takes more time to deal with than input from another resident. It is important that managers keep an eye on the time spent on the input and make sure that everyone is sufficiently heard and given the chance to be heard. The second step, handling all initiatives from society and governmental parties the same way, is supported by the qualitative results. Nonetheless, it is hard to investigate whether this is the case in practice. The third and last step, considering transparency and communication is supported by the results as well. Still, it is important that the project organisation keeps in mind that the stakeholders have a good access to the information that is provided.

Overall, it can be argued that it is hard to conclusively assess how far stakeholder management and participation are just. Different authors argue for participation to be essential for a just city (among others Harvey, 2003; Lefebvre, 1996 and Marcuse et al., 2009, see section 2.1.1). The qualitative results show that in recent years there was enhanced attention for stakeholder management and participation. It is shown that projects mostly act in line with the Code of Societal Participation and recognize the recommendations of the National Ombudsman. In some cases, it is argued that formal stakeholder consultation is sufficient when it follows what is legally needed. Others argue that you need to do more. It is the question if doing what is legally required is the same as doing just. Doing what is legally required might not be fully just. Residents with a higher socioeconomic status could be better heard as they are better equipped to participate and get involved (see section 4.2.3). Thus, when doing more than legally required it is important to be aware of the influence of socioeconomic status and make sure the 'silent majority' is not forgotten. In line with Taylor (2013) it was found that planners should be aware that planning processes and participatory policies may have exclusionary outcomes. Project teams should watch out that all stakeholders are sufficiently included and evenly heard to ensure a just participation process. For this reason, it is important to take inclusiveness, fairness and communication into account in stakeholder management and participation.

5.2.2 Strengths and limitations

This study has different strengths. It is an in-depth study into an important planning sector, namely infrastructure planning. Subsequently, it looks into different issues that are a 'hot topic', like delays and cost overruns, participation and social justice. The main strength is the research set-up. The study made use of both quantitative and qualitative research methods. The quantitative findings create a broad picture and the qualitative findings deepen out and elaborate on this. Concerning the quantitative analyses, the statistical analysis gave first insights on the relationship between socioeconomic status and project planning. The spatial analysis looks into this relationship as well and showed how this worked out geographically. The qualitative analysis subsequently provides more in-depth insights. Another strength is the high number of interviews with, among others, both stakeholder and project managers that together shaped how projects work out in practice.

However, the study may have some limitations. In general, there is little literature available on the studied topic. This gave the study an explorative character, but a weaker research base, as there is limited literature to build upon. Nonetheless, literature concerning topics that closely touch the subject complemented the view.

Concerning the quantitative research, the neighbourhood data concerning income was already a few years old during the data collection. However, income and education distributions within a neighbourhood do not change quickly and the collection of socioeconomic data by CBS takes time. The most recent data that was available was used. Numbers on education are not collected by CBS on the neighbourhood level on a regular basis. In some cases, there was no data available on education on a neighbourhood level, in these instances data available on the next spatial scale was used. Furthermore, as explained in the methodology (section 3.4), not all projects in the sample were finished during data collection. This might influence the credibility of the numbers in the MIRT desk study as their future development is unsure. Still, all projects had a definitive route decision and for the results delays before the realisation phase is object of study. Additionally, the regressions proved to be not significant in most cases. No hard conclusions could be drawn based on the results. One explanation could be the relatively low number of cases. In future research, a larger dataset or a more detailed dataset could enhance the significance. Another explanation could be that neighbourhoods were taken as a spatial unit used as a basis for the data on socioeconomic status. The number of neighbourhoods on which the average income and education was calculated might average out the skewed distributions. Also, the distribution of socioeconomic status within a neighbourhood can show differences. Among others

because of social mixing policies in the Netherlands, this could lead to more moderate results as well. On top of that, effects could be very local. A few individuals can have a big impact on a project, this is not taken into account on a neighbourhood level. At the same time effects could be very local. Residents that experience most disadvantages and nuisances are more likely to participate (Hamersma et al., 2014). For this instance, streets next to the concerned infrastructure projects could have been a better unit of analysis.

Another explanation for the insignificant results could relate to the way projects are reported by project managers. There is a focus on time, money and scope and there might be an incentive to not directly report delays and cost overruns as such. In practice, project organisations might integrate small local wishes from residents (with a higher socioeconomic status), but bear these costs as 'unforeseen', as was mentioned by one of the interviewees as well (see section 4.2.2). The additional costs for small integration measures are also relatively low compared to big technical matters in project construction. So, there could be incentives that result in that project reports might not show a full picture on costs and time. This may be strengthened by the governmental decision to not support non-statutory measures. This could mean two things. First, residents' wishes might be integrated more often than generally thought, at least in planning procedures. Second, as residents with a higher socioeconomic status are better equipped and able to participate and make themselves heard, it could be that their wishes are more often integrated. So, there might be more 'hidden' injustice concerning project integration in relation to socioeconomic status than came forward in the quantitative findings.

For the qualitative research, the interviewees created a detailed picture on the specific projects and stakeholder management and participation in general. However, as stated in the methodology, most interviewees were employed by Rijkswaterstaat, this could lead to a bias in the results. Yet, Rijkswaterstaat is the main executive agency of the Ministry of Infrastructure and Water Management and plays a prominent role in the planning process. The interviews from a citizens' perspective could nuance this view. Two residents with a background in local administration were interviewed to get a grip on how the projects are experienced on a local level. The interviews gave a good indication, but a higher number of interviewed residents could have strengthened the qualitative results.

5.2.3 Implications

It was found that stakeholder with a high socioeconomic status do not influence project planning in such a way that a project delays, experiences cost overruns or major scope change. Still, residents with a higher socioeconomic status are better suited to participate and voice their opinions. On top of that, often a specific group of stakeholders participates: the 'participation elite'. Subsequently, it was found in the qualitative analysis that in some cases, residents that complain more in the end get extra integration measures. However, in general the legally required measures, like noise barriers, should be sufficient, but often a regional party pays more to get additional measures. Out of social justice theory, it comes forward that all residents should be able to participate and have an influence on their local environment, especially because infrastructure has a long-term influence on the environment and residents' living conditions. Continuous exposure to road infrastructure externalities like noise nuisance and air pollution can increase stress and negatively affect health (see section 2.2.4). So, residents with a higher socioeconomic status having a benefit compared to residents with a lower socioeconomic status is an undesirable situation, especially because nuisances can have several negative effects on health and influence living standards. It is desirably that measures are taken to prevent this situation from happening, for example by ensuring social justice in stakeholder management (see section 4.2.6).

On top of that, answering questions and comments from residents with a higher socioeconomic status takes more time for a project team, as they are well-informed. In essence, this is not unjust *if* the opinions and questions of residents with a lower socioeconomic status are heard as well. However,

injustice could be the case if residents with higher socioeconomic status are more and better heard for this reason. It came forward in the interviews that there are indications that residents with a higher socioeconomic status are more and better heard as they are better equipped to participate and be involved, changing the discussion and setting the agenda of a project. Thus, based on social justice literature (section 2.1) and the qualitative findings (section 4.2.6) project teams should strive for inclusive participation and adjust their communication to reach as many people as possible. Subsequently, the input of all residents should be taken seriously to prevent talking shops.

The scientific contribution of the study relates to its scientific relevance (see section 1.4). It was laid out that there is a knowledge gap in the possible explanation of social factors, like socioeconomic status of surrounding residents, for infrastructure delays and cost overruns. This study is a first exploration of this subject. The findings are a first attempt to fill this knowledge gap. Also, there was little scientific knowledge of the selectivity of participation processes and the relationship between infrastructure planning and neighbourhood characteristics. This study provides a first insight if there is a relationship and how this relationship practically works out. Additionally, the study provides starting points for follow-up research.

The societal relevance of the study relates to the findings on the relationship between socioeconomic status and the planning of road infrastructure projects. The findings of the study relate to social justice theories. Based on the findings, different recommendations can be made to enhance social justice in infrastructure projects and ensure that residents do not experience disadvantages based on socioeconomic status. Secondly, the study showed how socioeconomic status influences project planning and how participation mitigates this relationship. As public involvement is not specified in the Environment and Planning Act which will take effect in 2022 (Kistenkas et al., 2018; Klostermann et al., 2019), recommendations are made on how to ensure social justice in formal stakeholder consultation and how this could work out in implementing the Environment and Planning Act.

5.3 Suggestions for follow-up research

Based on the limitations and findings of the quantitative and qualitative research, some suggestions for follow-up research are formulated. First, further research could more closely examine the relationship between socioeconomic status and scope change and/or integration measures. Often projects experience minor scope change, like the addition of a bicycle tunnel or sound screen. It could be useful to look into which stakeholders caused these changes. However, it may be hard to track down the socioeconomic status of single residents or a group of residents that lobbied for specific changes or integration measures. Additionally, numbers on neighbourhoods are averages and do not show divisions within a neighbourhood. The influence of residents may be more local than the neighbourhood scale. Follow-up research could have a more detailed another unit of analysis like WOZ-value, 6-character zip code or just the streets next to the project. A longitudinal study over a few years could also create more detailed insight.

Further research might investigate if there is a fair geographical spread of project budgets in the Netherlands. There are indications, based on the spatial analysis and qualitative findings, that there are differences in the share of project budgets between regional stakeholders and the government between Randstad and the more peripheral regions. The research could also look into the differences between project budgets, scope and project integration in the Randstad versus the rest of country, indicating (in)justice between regions on a national level instead of (in)justice within a project. This could relate to the implementation of CBA, as it can be argued that a CBA in the core areas of a country is more likely to be positive than in a peripheral region. This influences a country's policies regarding chosen projects and project budgets (Mouter et al., 2013).

Finally, relating to the limitations of the research (section 5.2.2) different elements could be improved. Concerning the quantitative findings, building up a more elaborate database on project and neighbourhood characteristics could have strengthened the results and its validity. For example, data on appeals, submitted opinions and background information of residents. Also, a smaller spatial entity than a neighbourhood, e.g. street level, could strengthen the results. Considering the qualitative findings, more residents with a differing socioeconomic status could be interviewed to get a better grip on the resident's perspective and motivations. For instance, to get a better understanding why residents do or do not participate, why they protest against a project or how satisfied they are with stakeholder participation in a more elaborate way. Additionally, only stakeholders with a direct interest in a project can appeal to the Raad van State. In relation to social justice it could be researched if social organisations like Amnesty International could appeal to a project having an interest when there are injustices in formal consultation of a project or when specific population groups are unproportionally disadvantaged by a project.

5.4 Recommendations

Based on the results of the study, various recommendations can be made to improve stakeholder management and participation of infrastructure projects concerning social justice.

It was found that inclusiveness and communication are important parts to ensure just stakeholder management and participation. It was found by the National Ombudsman (2019) that residents feel insufficiently heard. On top of that, often a small share of residents joins information meetings or participates. To prevent a 'participation elite', it is key to be inclusive and adjust communication to the needs of residents. In line with the findings of the National Ombudsman (2019) it is important to make a good start up front and manage expectations of residents. Additionally, a stakeholder analysis can be made to get a grip on the local population. Within the stakeholder analysis, special attention could be paid to socioeconomic status of residents and stratification within the neighbourhoods. Subsequently, communication and tools could be adjusted matching the needs of residents with a different age, socioeconomic status or ethnic background. For example, senior citizens do not always have an internet connection, thus it is important for a project to not focus all communication on online channels. However, for younger generations, online channels like social media could be a good fit. Not every group is evenly mobile or has access to a car and has the ability to look into the permits at the city hall as came forward in section 4.2.6. For this reason, it is important that information is accessible in close proximity. Increasingly, documents are available online. Online documents should be easy to find online and understandable for the public, for example by making use of visualizations and infographics. This relates to the recommendations of Hamersma et al. (2016) as well. On top of that, communication should be transparent, point out what people can influence and/or decide and what not. Do not make a promise that cannot be kept. Also, communication should be frequent and for a longer time frame, not 'hit and run' of having participation for making a decision. Often, a project communicates to its stakeholders when a new decision is made or a specific event happens. In times the project organisation works on administrative issues or no special event happens, it is meaningful to still communicate. In this way, residents do not forget about a project and keep a grip on the topic.

Additionally, it is important to keep in mind that residents know their neighbourhood ('local content') but are not an expert on technical details like decibels or reading difficult maps. During an information meeting, residents want to be informed and understand what is going on. For example, reading a map is easy for an expert, but residents could struggle with this. It could help to indicate on a map local landmarks to make it easier to read. In some projects, virtual reality, visualisations and special rooms to listen to a future number of decibels are used to make project impact concrete for residents. On top of that, residents might be reluctant to ask questions during an information meeting, so the project organisation should have an open attitude and could be trained in their communication skills. It is recommended to implement this in every project so that all residents know how they will be impacted

and could possibly respond to this by for example submitting an opinion. This is important, as according to Hamersma et al. (2016) points out that information provision on a project increases acceptance of plans, but only a minority is satisfied with the information provision. It is worthwhile to pay attention to this group as it could enhance satisfaction of the 'silent majority'. Still, it is hard for a project organisation to know if the information that was provided reached its goal. For this reason, communication should take place via different communication channels and occur on a regular basis. Additionally, bike and walking tours could be organized to show residents where specific elements will be located. In this way, the project is no longer an abstract concept, but becomes concrete in their living environment. Sometimes, residents do not have the time or are not willing to come to an information meeting. It could be a solution to organize digital ways of stakeholder involvement, for example by voting on designs or an online survey on residents' wishes.

It was found that the integration of local wishes – a so-called area-oriented approach – can increase project satisfaction and support. For example, a cyclist tunnel or a park. On top of that, it was found that in some projects, it felt just to offer people more than was legally required. It is recommended to leave room for this in regulations so that project managers and stakeholder managers have more freedom to assess the situation and adjust to the circumstances. For these instances, it could be a solution to reserve a small part of the budget up front. Especially, because often these are small amounts of money in relation to big technical issues that must be solved. However, this could be a pitfall as well. The influence of socioeconomic status should be kept in mind to make sure that those residents that are more assertive and well-informed do not get a substantially better project integration.

The third recommendation relates to the argument of Arnstein (1969), who advocates participation as a redistribution of power that enables the 'have-not citizens' to share in the benefits of society. The have-nots relate to residents with the disadvantages that residents with a lower socioeconomic status experience compared to residents with a higher socioeconomic status. For example, negative effects of infrastructure projects like nuisance, health impact and barrier impacts. On top of that, people with a lower socioeconomic status are more vulnerable for eviction in rental homes and are have fewer resources to make use of judicial power. To enhance the inclusiveness of a project and ensure the involvement of different stakeholder groups, it could be a solution to offer extra help for more vulnerable groups in society, especially to balance the input against residents with a higher socioeconomic status. For instance, the project organisation providing help to submit an opinion or do a home visit to give extra information. On top of that, letters can be drafted in easier to follow, clear language, as residents with a lower socioeconomic status could struggle with reading official letters. More general, it is recommended to enhance the level of participation, for example in line with Arnstein's ladder (Arnstein, 1969). Infrastructure projects influence residents' daily living environment on the long term. For this reason, *all* residents should be able to participate to ensure social justice. Concrete, this could mean more feedback groups, co-design sessions or digital public involvement in participation processes.

Fourth, an internationally well-known instrument such as social impact assessment (SIA) could be integrated into the planning procedures next to environmental impact assessment. SIA is not mandatory in the Netherlands. To embed a project in the community and reduce protests, social impact assessment could play a role. Social impact assessment analyses, monitors and manages the social consequences (whether intended or unintended) and social change processes of a planned intervention to create a "more sustainable and equitable biophysical and human environment". (Vanclay, 2003, p.6). When SIA is implemented in planning practice, stakeholders are included in the process at an early stage. In this way, the stakeholders have a sense of ownership over the project and feel that they are partly responsible for a good solution. This reduces the chance of long-term opposition (Vanclay et al., 2015). SIA could be implemented in the infrastructure planning process to come to effective decision-making supported by the stakeholders (de Groot, 2017). In the late

1990s/early 2000s within Rijkswaterstaat, much experience has been gained with research to Community Values Assessment ('belevingswaardeonderzoek'), which seems to be relevant here to take up (again) as an addition to EIA. CVA assesses how an infrastructure project could affect the local environment from the residents' perspective, this provides useful information for decision-makers (Stolp et al., 2002). Implementing CVA and/or SIA next to the existing EIA, could together shape a clear picture of how a project impacts different population groups, with differing socioeconomic status, to balance the burdens and benefits of a project.

The last recommendation refers to the Environment and Planning Act which will take effect in 2022. In the act, formal stakeholder consultation will be mandatory, but it is not specified how (Kistenkas et al., 2018; Klostermann et al., 2019). It is recommended to set up some broad guidelines concerning social justice in the Environment and Planning Act. Among others that public involvement starts up front in a project all stakeholders should be broadly involved. Within a project, it is important to take into account the fairness, communication and inclusiveness of participation and stakeholder management. It should not be prescribed how every project should handle this, but further suggestions could be given on how to tackle this (see section 4.2.6).

5.5 Reflection

The theoretical framework provided a sound foundation for this study. Especially the theories on justice, project planning and participation were useful. The theoretical framework was also satisfactory to answer the theoretical research question. The research set-up with quantitative and qualitative methods turned out to be an intensive but good combination. The qualitative information as a result of the interviews deepened the quantitative findings and created new insights. A bigger database and more exact numbers on specific topics could have enhanced the quality of the statistical analysis. Reaching out to interviewees via e-mail was found to be effective. In some cases, the contacted stakeholder or project manager had left the project and suggested to contact another person. In the end a project and stakeholder manager of every project was interviewed, as aimed for up front. A higher number of interviewees could have improved the quality of the qualitative findings, but considering the limited amount of time fourteen interviewees gave a sufficient insight concerning the research questions. The research outcomes were sufficient to provide a basis for recommendations and suggestions for follow-up research. Beforehand, it was expected that there would be more indications in the quantitative findings for an influence of socioeconomic status on project planning. However, beforehand it was also deliberated that effects could be very local, complex and diffuse. It was expected that the qualitative part of the study would lead to more anecdotal evidence. Some things were in line with the expectations, but in some cases new insights were provided.

In section 3.6 the positionality of the researcher was discussed. An internship at Rijkswaterstaat could influence the neutrality of the researcher during the research process. It was experienced that the internship was beneficial when reaching out to interviewees. The researcher was aware of this positionality and tried to remain neutral and prevent bias. Additionally, triangulation of different research methods was applied to improve the strength of the results.

The research took place during the 'intelligent lockdown' of the Netherlands due to the coronavirus pandemic. Due to the measures, from half March onwards the research took place from home. All interviews took place digitally. This did not influence the quality of the interviews, but a face-to-face interview could have given additional information, for example via non-verbal communication. On top of that, the university buildings were closed, so the statistical and spatial analysis were executed on a computer that was less equipped to run the required programs. This did not influence the quality of the findings, but made the process more difficult and time-consuming. During the research process, different skills were improved and were done more easily over time. For example, skills in interviewing,

executing statistical analyses and practicing with different computer programs like ArcMap and Atlas.ti.

All things considered, this study led to new, interesting insights on the relationship between socioeconomic status and infrastructure project planning. Still, this relationship is very complex and diffuse. The study led to many new questions and gave indications for follow-up research. Socioeconomic status can impact project planning in different ways. Stakeholder management and participation mitigate this relationship. Thus, planning highways, right or just? In this chapter, it came forward that doing right does not per se mean doing just, but we can at least strive for it.

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Appendices

Appendix 1: Basic interview guide

- Algemeen
 - o Wat is uw functie binnen het project?
 - o Hoelang voert u al deze functie uit binnen het project?
 - o *Projectspecifieke inleidende vraag*
- Tijd
 - o Het project heeft x jaar geduurd. Kunt u uitleggen waarom de verkenning en planstudiefase x jaar hebben geduurd?
 - o Waardoor zijn de vertragingen ontstaan? *Bijv. externe factoren zoals natuurbescherming, weerstand vanuit de omgeving (burgers, bestuur), onzekerheden en toegenomen complexiteit.*
 - o Is er gedurende het project een adaptieve aanpak? Wat verstaat u hieronder?
- Geld
 - o Hoe heeft de budgetraming zich ontwikkeld over de tijd? Hoe komt dit? *Bijv. luxere uitvoering (scope change), onzekere toekomst, gestegen kosten/tarieven, etc.* Welke rol heeft de omgeving (belanghebbenden) hierbij gespeeld?
 - o Hoe zijn de budgetten verdeeld over de omgeving? Profiteert een bepaald gebied het meest?
- Scope
 - o O.b.v. het MIRT en het TB is te zien dat de scope van het project over de tijd wel/niet veranderd is. Hoe is de scope van het project veranderd?
 - o Zijn er ook veranderingen geweest zoals bovenwettelijke maatregelen ten aanzien van de inpassing van het project, zoals extra maatregelen (bijv. geluidsschermen)?
 - o Was dit een wens van omwonenden of de gemeente? Waar en voor wie?
 - o Is er in dit project sprake van een integrale aanpak? Wat verstaat u daaronder?

Stakeholder management en protesten

- Participatieproces
 - o Wie zijn de omgeving en hoe verhouden verschillende partijen zich tot elkaar?
 - o Hoe zag het participatieproces eruit bij project X? *Vergelijken met Code Publieksparticipatie en Spelregels MIRT*
 - o In hoeverre konden de inwoners invloed uitoefenen op het project? Hoe groot was deze invloed? Waar bestond deze invloed uit?
 - o Hoe communiceerde het project naar bewoners (nieuwsbrieven, social media, deur tot deur, etc.)? Werd dit aangepast op verschillende doelgroepen?
 - o Denkt u dat het participatieproces het project kwalitatief verbeterd heeft? Op welke wijze? Hoe zou u het anders doen als u het opnieuw kon doen?
 - o Heeft het participatieproces de steun voor het project vergroot? Heeft dit invloed gehad op de doorlooptijd van het project? Welke?
 - o Zijn de inwoners tevreden met het project? Beïnvloedt het hun leefbaarheid?
 - o Bent u van mening dat opleidingsniveau en financiële draagkracht bij belanghebbenden van invloed kunnen zijn op een participatieproces? Op welke wijze?
 - o Bent u van mening dat in het participatieproces alle bewoners mee hebben gedaan? Waren de uitkomsten representatief voor de mening van de omgeving? Welke delen van de omgeving? En als u het opnieuw moest doen, zou u het dan hetzelfde aanpakken? Waar kan ik hier evt. meer informatie over krijgen?
 - o Wat is naar uw mening een eerlijk, rechtvaardig proces (participatie/planvorming)?
 - o Was daar bij dit project sprake van? Waar blijkt dat uit?
 - o Hoe hebben de bewoners het proces ervaren, naar uw mening? Is dat nagegaan

- Weerstand
 - o Is er veel (georganiseerde) weerstand geweest uit de omgeving? Met welk resultaat?
 - o Zijn er protesten (zienswijzen) geweest? Zo ja, door wie? Wat hebben deze protesten opgeleverd?
 - o Hoe keken de omwonenden vooraf naar het project? Was hier naar uw mening sprake van een NIMBY-houding?
- Afsluitend
 - o Als u het in de toekomst opnieuw zou kunnen doen, wat zou u dan als eerste oppakken?
 - o Wat zijn goede ervaringen in dit project die een voorbeeld zouden kunnen zijn voor andere projecten?
 - o Heeft u zelf nog opmerkingen of toevoegingen aan dit gesprek?

Appendix 2: Codebook

Code	Code group	Description	Frequency
Accessibility	Participation	Whether the participation process and access to information is accessible	13
Access to information	Communication, justice	Whether residents have access to information on the project and how this is provided	11
Adaptivity	Scope	Adaptive approach in project scope	12
Add quality	Scope	Create win-win, integral approach to add quality to a project for the local area	9
Additional costs	Budget, justice	Project exceeds budget due to additional costs	12
Administrative delay	Time	Delay due to administrative difficulties	14
Ample and clear communication	Communication, participation	Inform residents as much and clear as possible	6
Austerity	Scope	Austerity due to budget cuts	3
Balanced consideration	Communication	Taking different opinions from different areas into accounts	6
Breakthrough	Time	Project gets a 'push'	8
Co-design	Participation	Residents being able to co-design a project	16
Communication with residents	Communication	Specific communication with local residents	81
Communication with stakeholders	Communication	Specific communication with different stakeholders like nature protection groups or municipality	10
Comply with the law	Justice	When the legal amount of participation is executed, it is fair	13
Concreteness of project	Communication, participation	The more concrete a project is, the more stakeholders are likely to participate as they understand its influence	23
Contract form	Budget, time, scope	Contract form influencing planning of a project	11
Culture wrap	Participation	Changing zeitgeist in project organisation concerning participation	8
Delay by resistance	Time, resistance	Project delayed due to resistance	4

Digital participation	Justice, participation	Increased participation by making use of digital opportunities	8
Distribution	Budget, stakeholders	Fair distribution a.o. money	10
Diversity	Participation	Whether a diverse group is involved in participation	17
Double hit	Justice	Residents feel double hit by a project after earlier interventions	7
Economic developments	Budget, time	Changing economic circumstances influence a project	11
Empowerment (mondigheid)	SES	Stakeholders with higher SES are more likely to participate and voice opinions	7
External influences delay	Time	Project delay due to external influences	9
Fairness	Justice	Whether stakeholders are fairly compensated or fair distribution of measures	24
Feeling heard	Communication	Whether residents feel heard by the project organisation	10
Having an interest	Participation, resistance	When stakeholders have a specific interest they are more likely to resist or participate	6
Influence sentiment (via media)	SES	Stakeholders positively/negatively influence the sentiment of a project (by making use of the media)	6
Information meetings	Communication, participation	How the information meetings were designed, how many, etc.	42
Integral	Scope	Integral project scope might heighten support	20
Interest in participation	Participation, SES	Interest in a project heightens likeliness to participate	2
Kind of discussion	SES	Project organisation has another kind of discussions with residents with differing SES	3
Land purchase/expropriation	Resistance	Land purchase and expropriation might lead to resistance	12
Local wishes	Scope	Wishes from regional stakeholders and residents	46

Match scope and budget	Budget, scope	Whether or not the scope and budget match which might lead to austerity	7
Mentality in the area	Participation, resistance	How local culture influences participation	5
Minor adjustments	Scope	Minor wishes of stakeholders to integrate in the project	26
Nature lobby	Resistance, SES	Lobby against a project for nature protection	8
Network	SES	Whether stakeholders have a good network	6
NIMBY	Resistance	Not in my backyard sentiments of stakeholders	17
No money available	Budget	Project not initiated due to lack of money	6
Non-statutory measures	Justice, scope	Whether non-statutory measures are taken in a project	13
Nuisance	Resistance	Presence of nuisance that might lead to resistance before or during project (realisation)	35
(Open) attitude	Communication	Attitude of project organisation to residents	14
Openness/transparency	Communication, justice	Open and transparent communication of project organisation to stakeholders	45
Opposing interests	Stakeholders, resistance	Stakeholders want different things because of different interests	29
Organized resistance	Resistance	Certain groups opposing a project	6
Participation of residents	Participation	Amount to which residents are participating	37
Personal approach	Communication	One-to-one conversations (e.g. 'keukentafelgesprekken')	5
Politics	SES	Influence a project via (local) politics	8
Precedents	Communication, scope	Whether wishes are granted not to set precedents	6
Project integration	Scope	How is the project integrated in the area	10
Project involvement	Communication	Do residents feel involved in a project (sense of belonging)	8
Protests	Resistance	Whether there were active protest against a project	14
Region takes the lead	Budget, stakeholders	Regional parties advocate and push the project	4

Regional stakeholders	Stakeholders	Involvement of e.g. municipalities or province	60
Relative low number submitted opinions	Participation, resistance	Low number of submitted opinions as measure for resistance	6
Representativity	Participation, SES	Are residents represented well in participation and information meetings	27
Resistance before project	Resistance	Residents were advocating the project	17
Satisfaction	Participation, resistance	Are stakeholders satisfied with a project	35
Scope change	Budget, justice, participation, scope, SES, time	Whether the project scope changed and how	38
Small area, many stakeholders	Time	Opposing interest in a small project area	1
Small community	Participation, SES	Higher likeliness of a small community to participate and be representative	4
Social media	Communication,	How social media is used in the project	13
Sound measures	Scope, justice	Which sound measures like sound screens are taken	24
Stakeholder delay	Time	Project delay due to stakeholders	6
Stay within budget	Budget	Whether the budget is exceeded or not	6
Submitting opinions	Communication, resistance	Submitting opinions ('zienswijzen') as a measure of resistance	18
Support base	Participation, resistance	Amount to which there is support for the project by stakeholders ('draagvlak')	39
Sustainability	Scope	Whether sustainability is in the project scope and how	6
Target groups	Justice, participation	Whether different target groups are involved (e.g. elderly and working citizens)	16
Time for participation	Participation, SES	To what amount do residents have time to participate	1
Too early	Time	Project finished before due date	1
Up front	Communication, participation	Start early ('aan de voorkant') with communication to and participation of residents	24

Well informed (on rights)	SES	Whether residents are well informed on the project and their legal rights	7
What is possible/ability to influence	Communication, justice, scope	Whether residents are informed on what will happen and the extent to which they are able to influence	38
Zeitgeist/culture	Participation	Culture within project organisations in communication and participation of stakeholders	20