EFINANCING CLIMATE ADAPTATION THROUGH LAND VALUE CAPTURE

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Master's thesis for the Spatial Planning Programme, specialisation Planning, Land and Real Estate Development

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Summary

Due to climate change, challenges regarding sustainability and climate adaptation arise. In this research, I focus on climate adaptation measures on a small scale. Examples of these types of measures include the strengthening of dikes, widening of rivers, or constructing more greenery (e.g., green roofs, green corridors, community gardens, street trees, etc.). These measures ask for investments which raises the question of who will pay for these climate adaptation measures. In this research I explore whether these measures could be accounted for through land value capture.

The land value capture tool can allow the government body to capture some of the value increase in developments. However, the associated negotiations are central in spatial planning, making them rather influential in the outcomes of spatial plans. It is therefore necessary that these negotiations are indeed successful in shaping the outcomes of spatial plans. In my research I will take a look at these negotiations, with a focus on the actors that take part in them. Furthermore, I focus on the ways in which climate adaptation measures might be accounted for more through land value capture. Climate change can be problematic in different ways. It is therefore important to address any of the implications of climate change. The measures – solutions – do come at a price. You will need investments (finance) and a change of behaviour (action) to fully implement the measures (Hartmann & Spit, 2014; Van Valkengoed et al., 2023).

The aim of this research is to find out what the connections between – and possibilities for – the different actors that are involved are, and if there are any shortcomings or points of improvement, especially regarding the financing of climate adaptation measures.

The main research question of this research is formulated as follows:

What do the land value capture negotiations look like to the participating actors and, to what extent can the negotiations be optimised in order to account for climate adaptation?

The main research question is then accompanied by three sub research questions. These are the following:

1. How do the land value capture negotiations in the Netherlands work?
    a. Who is allowed to participate?
    b. What relevant policies are there?
2. What do the land value capture negotiations look like for the participating actors?
    a. What resources do the actors have in the negotiations?
    b. What influences do the actors have? Who determines policy outcomes and how?
3. How can land value capture (and the negotiations) be optimised in order to make it more efficient in accounting for climate adaptation?
    a. How aware are actors currently of the need for investments in climate adaptation?
    b. How are the actors' ideals aligned? Do they all support climate adaptation?
    c. What changes in behaviour/thinking need to be made?
    d. What role can land value capture play in financing climate adaptation measures?

For the operationalisation of this research, I have used the Policy Arrangement Approach by Arts et al. (2006). In their approach they focus on four domains. These are the following:

- "the *actors* and their *coalitions* involved in the policy domain;

- the division of power and influence between these actors, where *power* refers to the mobilisation, division and deployment of resources, and *influence* to who determines policy outcomes and how;
- the *rules of the game* currently in operation, both in terms of actual rules for political and other forms of interaction, and in terms of formal procedures for pursuit of policy and decision-making; and
- the current policy discourses and programmes, where the concept of *discourse* refers to the views and narratives of the actors involved – in terms of norms and values, definitions of problems and approaches to solutions – and the concept of *programme* refers to the specific content of policy documents and measures" (Arts et al., 2006, p. 99).

For this research, I operationalised the four dimensions. This operationalisation can be seen in Table 1. A more extensive explanation of the approach and the operationalisation can be found in chapter 2.3 of this research.

TABLE 1 OPERATIONALISATION OF THE FOUR DIMENSIONS

Dimension	Indicators
Actors	Actors themselves: who is allowed to participate in the negotiations Interactions between actors
Resources	Resources of the actors: knowledge or expertise that the actors hold Power relations between the actors Influence of political choices/preferences
Rules of the game	Formal rules: what land value capture in the Netherlands is used for and what the negotiations (should) look like
Discourse	Policy: on climate adaptation and sustainability Habits/norms: what the actors' ideals of climate adaptation look like

The research strategy that I have chosen is a combination of desk research (for which I will use scientific papers and policy documents to gather my data) and a primary data collection (for which I will collect primary data through semi-structured interviews). I have held several interviews with professions in spatial planning. In total, I conducted eleven interviews with twelve interviewees. For these interviews I created an interview guide which can be found in Dutch in Appendix A and in English in Appendix B.

In general, there are two actors that take part in the land value capture negotiations. These actors are the municipality and the developer. Next to that, housing corporations or landowners could occasionally participate in the negotiations as well, this is when they are act as developer. Actors that have interests in the project can have a slight influence on the negotiations as well. Their influence then takes via the demands that they make. The actors have to deal with several relevant policies that form requirements that the projects have to meet.

There are no big expertise differences between the two actors – municipality and developer. However, power differences can be present and can influence the negotiations. Since all actors in the negotiations are dependent on each other for actual execution of the project, there is not one actor that is always the most powerful. However, the results showed that the actor who is also landowner generally has a slight advantage. So, when the municipality is landowner, they are able to demand requirements for the project that the develop needs to meet. When the developer is landowner, they might be able negotiate more about the requirements that the municipality sets since the municipality does want that plot of land to be developed.

There are several challenges to climate adaptation. To be able to properly address these challenges, it is important that actors are aware of and recognise the problem, and that they see the urgency behind it as well (Hartmann & Spit, 2014). Overall, municipalities are more aware of and recognise the problem of climate adaptation more than developers. For developers the financial costs are more of a restrain to invest in climate adaptation than for municipalities. However, it does not mean that climate adaptation is not becoming more and more urgent.

Throughout the interviews, interviewees mentioned that it is possible to address climate adaptation through land value capture. It is important to note that this only applies to measures that take place in public space. For climate adaptation measures that apply to buildings, these requirements are a part of the building regulations.

However, affordability of climate adaptation measures is still a big challenge. The costs of climate adaptation can often limit the profits that projects can make and might even make it that some projects make a loss. It is thus important that developments regarding the implementation of climate adaptation are made. When the implementation is cheaper, it is more attractive to indeed implement these measures.

Preface

Before you lies my master's thesis *Financing Climate Adaptation through Land Value Capture*. This thesis is part of my master programme in Spatial Planning at Radboud University, Nijmegen. In this master programme I follow the specialisation *Planning, Land and Real Estate Development*. Before this master programme I followed the bachelor programme *Geography, Planning and Environment*, also at Radboud University. In my bachelor thesis titled *Right-Wing Populist Discourse and EU Policy: The Case of the Netherlands*, I focused on migration issues, which is definitely quite a different topic than the topic of this research. However, I did decide that in general I am more interested in spatial planning, which is why I decided to follow my current master programme.

In several lectures of my master programme, we talked about land value capture. I think this is an interesting topic which is why I decided to focus on it for my thesis. Next to that, climate change is still an urgent problem and I am always interested in topics surrounding it. The focus on climate adaptation in this thesis is therefore fitting. Now that I have written my thesis, I can say that I do indeed still find land value capture and climate adaptation interesting topics. The process of developing a good and clear research proposal took a bit longer than I originally intended it to last. However, I do believe that the extra time I took writing that research proposal has helped me in efficiently working out my research.

In the end, I am satisfied with this thesis that I have written and I want to thank everyone who has contributed to it; from the interviewees, to my supervisor Klaas Kresse and to friends and family with whom I was able to discuss certain struggles surrounding the writing process.

Tara Budding

Nijmegen, November 21, 2024

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1. Introduction to the research

Climate change brings about new challenges for the living environment (Daamen & Taylor, 2022). In the Netherlands, implications of climate change are for example sea level rise, extreme weather, heat waves or long periods of drought (Rijksoverheid, n.d.). It is necessary to implement measures that will counter the implications of climate change in order to reduce the vulnerability to these implications. Examples of possible measures against the impact of climate change are climate adaptation measures.

These climate adaptation measures can be both more small-scale and more large-scale. Large-scale climate adaptation measures are, for example, investments in renewable energy, halting deforestation, and flood protection. Whereas examples of small-scale climate adaptation measures are the strengthening of dikes, widening of rivers, or constructing more greenery (e.g., green roofs, green corridors, community gardens, street trees, etc.) in cities (Breuste et al., 2020). In this research, I will mainly focus on these small-scale measures. Investments have to be made in order to actually be able to implement these measures. This is where a new challenge arises. Namely, the question of who will pay for the measures.

Land value capture is a tool that is used in spatial planning that makes it possible for government bodies to recover value increases of land and/or property deriving from public action. This recovered value increase can then in turn be reinvested in public facilities (Alterman, 2012; Hu et al., 2019; McAllister et al., 2018; Muñoz Gielen et al., 2017). I elaborate on the topic of land value capture more in chapter 2.2.1. I believe that land value capture – and its workings – could expand and focus on (partially) financing climate adaptation measures as well. Thus, it would then not only focus on infrastructural investments for example, but also on challenges regarding climate change and sustainability (Dunning & Lord, 2020; Flint, 2022b; Van der Krabben et al., 2023). These land value capture instruments are often shaped by negotiations between relevant actors. In these negotiations, the actors discuss the way a development will be designed, executed, planned, etc. It is therefore crucial to have some understanding of these land value capture negotiations and the actors that take part in them. This is something that I will look at first, and can be found in chapters 4.1 and 4.2. After that, in chapter 4.3 I focus on both land value capture and climate adaptation.

In this research, I aim to find out what the connections between – and possibilities for – the different actors that are involved in land value capture negotiations are, and if there are any shortcomings or points of improvement, especially regarding the financing of climate adaptation measures.

I base my research on previous studies, and expand this. An example of a study that I based this research on is the paper of Dunning & Lord (2020). In their paper titled "*Viewpoint: Preparing for the climate crisis: What role should land value capture play?"* they focus on how land value capture could be used as a financial instrument for climate adaptation measures. In this research I specifically focus on climate adaptation measures and land value capture in the Netherlands, this is something that has not been done much. Next to that, I focus on the three phases of awareness, recognition and urgency as introduced by Hartmann & Spit (2014). These phases are crucial in tackling a problem, in this case the problem of climate change and its consequences. When actors show awareness and recognition of a problem, they are more likely to do something about it. If they also have a high sense of urgency, this is even more prominent. Investing in climate adaptation measures will be easier when actors have the urgency to do so, rather than whey they are simply obliged to do so.

In this research, I use the *Policy Arrangement Approach* by Arts et al., (2006) as theoretical lens. The framework introduces four domains that are important to study when looking at policy arrangements.

These domains are: 1) actors, 2) resources, 3) rules of the game, and 4) discourse. I have formed my research questions around these domains, which can be found in chapter 1.3, as well as a further introduction of the theoretical framework and its operationalisation in chapter 2.3.

The main research question of this research is formulated as follows: *What do the land value capture negotiations look like to the participating actors and, to what extent can the negotiations be optimised in order to account for climate adaptation?* I complement this main research question with sub questions, these can be found in chapter 1.3. Through desk research and eleven semi-structured interviews I gather data that allows me to answer my research questions. I have transcribed all interviews, after which I coded them. This allows me to analyse the data in a systematic way, ensuring validity and reliability.

In the remainder of this chapter 1, I will first introduce my research problem and research aim. These are central in the motivation of why I am doing this research and what I want to achieve with it. After that, introduce my research questions. Lastly, I focus on the scientific and societal relevance of this research.

In chapter 2 I focus on the literature review and the theoretical framework of this research. In the literature review, I expand on land value capture and its workings, as well as on climate adaptation. Then, I continue with my theoretical framework where I will start by introducing the *policy arrangement approach* of Arts et al. (2006). I will then also operationalise the way in which I use this framework for this research.

In chapter 3 I expand on the methodology of this research. I introduce the research strategy, as well as data collection and analysis, and validity and reliability of this research. I also elaborate on the interviews that I have conducted and the way that I have analysed them with the help of the codebook that I have developed, which can be found in Appendix C.

Chapter 4 focuses on the results of this research that I have gathered using the methodology from the previous chapter. Here, I focus on my sub research questions that I will discuss in the same order that I have introduced them in in chapter 1.3.

After that, I discuss these results in chapter 5, and answer the main research question in chapter 6. Finally, I end with my critical reflection on this research and recommendations for future research.

1.1 Research problem

Urban planning deals with several challenges; climate change, affordable housing, rapid urbanisation, transportation, social inequality, urban sprawl, etc. Land value capture can be used as a tool to (partially) finance these spatial plans. Often, it is used for infrastructural investments (OECD, 2022). Land value capture is a general name for the several land value capture instruments that exist. These instruments work in different ways, with different motivations and different focus points that lead to different outcomes. These land value capture tools can have a negotiation process incorporated in them. In these negotiations, government bodies, landowners or developers negotiate about a spatial development plan. The land value capture tool can allow the government body to capture some of the value rise in developments. However, these negotiations are central in spatial planning, making them rather influential in the outcomes of spatial plans. It is therefore necessary that these negotiations are indeed successful in shaping the outcomes of spatial plans. In my research I will look at these negotiations, with a focus on the actors that take part in them. Furthermore, I focus on the ways in which climate adaptation measures might be accounted for more through land value capture.

Climate change can be problematic in different ways. It is therefore important to address any of the implications of climate change. The measures – solutions – do come at a price. You will need investments (finance) and a change of behaviour (action) to fully implement the measures (Hartmann & Spit, 2014; Van Valkengoed et al., 2023). Hartmann & Spit (2014) write about *capacity building for the integration of climate adaptation into urban planning processes*. They note the importance of awareness, recognition, and urgency that actors need to have in order to change their behaviour regarding – in this case – climate adaptation. Awareness, recognition and urgency are closely connected to capacity building. That is why, in my research, I will also pay attention to actors' standpoints towards climate adaptation. I will expand on these phases more in chapter 2.2 on climate adaptation.

1.2. Research aim

This research takes on an explorative approach, since I investigate ways in which climate adaptation measures might be accounted for by land value capture, as well as the role that relevant actors play in this. More specifically, the aim of this research is to find out what the connections between – and possibilities for – the different actors that are involved are, and if there are any shortcomings or points of improvement, especially regarding the financing of climate adaptation measures.

Typically, research with an explorative approach results in empirical descriptions, which is also the case for this research. The findings of this research can lead to a better understanding of the relation between land value capture and the possibility of financing climate adaptation measures, as well as a better understanding of the negotiations of these land value capture instruments themselves. Lastly, the findings can also lead to insights/recommendations regarding capacity building between the participating actors.

1.3 Research questions

My research problem and research aim are supported by my research questions. These research questions have also been inspired by the theoretical framework that I use in this research. Arts et al. (2006) introduce the *policy arrangement approach*. Through this approach, they develop a way via which policy arrangements can be studied properly. Their approach addresses four dimensions that are all connected to one another. These dimensions are: actors, resources, rules of the game, and discourse. I delve deeper into these dimensions in chapter 2.3.1 on the theoretical framework of this research. I have taken these dimensions as central starting point in developing my research questions. This means that I study all four of these dimensions in my research on the topic of land value capture negotiations and climate adaptation.

The main research question of this research is formulated as follows:

What do the land value capture negotiations look like to the participating actors and, to what extent can the negotiations be optimised in order to account for climate adaptation?

The main research question is then accompanied by three sub research questions. These are the following:

1. How do the land value capture negotiations in the Netherlands work?
    a. Who is allowed to participate?
    b. What relevant policies are there?
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    a. What resources do the actors have in the negotiations?
    b. What influences do the actors have? Who determines policy outcomes and how?

3. How can land value capture (and the negotiations) be optimised in order to make it more efficient in accounting for climate adaptation?
    a. How aware are actors currently of the need for investments in climate adaptation?
    b. How are the actors' ideals aligned? Do they all support climate adaptation?
    c. What changes in behaviour/thinking need to be made?
    d. What role can land value capture play in financing climate adaptation measures?

In the first sub research question, I focus on the formal setup of the land value capture negotiations in the Netherlands. I first delve deeper into the actors that take part in these negotiations in the Netherlands, where I make a distinction between actors who take part in the negotiations and actors who do not. Instead, these actors only have interests in the negotiations, for example because they are the future owners of the area that is being developed. After that, I focus on some relevant policies. These policies have been mentioned several times by the interviewees and are relevant to understand some power differences that I will explore in the second sub research question.

In that second sub research question, I expand on the findings of the first sub research question. Here, I focus on what the negotiations look like for the participating actors. I study the resources of the different participating actors by focussing on knowledge/expertise differences, as well as power differences.

Lastly, in the third sub research question, I focus on possible optimalisations for the land value capture negotiations, while especially focusing on the possibilities for including climate adaptation. I then first pay attention to the current relation between land value capture and climate adaptation, after which I focus more on the viewpoints of the actors regarding climate adaptation. Here, I focus on the ideals that the actors have regarding climate adaptation. I do this by focussing on the three phases of awareness, recognition and urgency and discussing to what extent these are present for all of the actors. Lastly, I focus on changes that might be needed to optimise the workings of land value capture and climate adaptation. This could be behavioural changes (for example, more awareness is needed) or policy changes (for example, it is or is not possible to finance climate adaptation measures through land value capture).

1.4 Scientific and societal relevance

1.4.1 Scientific relevance

In this sub chapter, I introduce the scientific relevance of this research. I do this by referring to several scientific papers that focus on either land value capture or climate adaptation. As Hu et al. (2019) and McAllister et al. (2018) write, land value capture is often used to finance infrastructure or public services. However, climate change asks for investments in climate adaptation measures. These measures need to be financed. Spatial plans and developments also have to incorporate some adaptation measures to make the projects (more) sustainable (de Bruin et al., 2014; Hurlimann & March, 2012). This means that in financing spatial developments more and more attention needs to be paid to climate change and its implications. There are several benefits that climate adaptation brings in spatial planning. Examples of these benefits are the following: avoiding damage, increased water/air quality, landscape quality or the level of biodiversity or greenery in a neighbourhood (de Bruin et al., 2014).

As I have introduced before in my research problem and research aim, I will also focus on the negotiations that take place regarding land value capture. These negotiations are important since they shape the way that these spatial developments in the Netherlands are executed. Stec (2021), for example, notes that municipalities do not capture as much value as they are legally allowed to capture.

It is important to see why this is happening and what the consequences might be. Next to that, there are proposals for improving land value capture in the Netherlands. Examples of this are proposals for a *planbatenheffing* (where the value increase of land after a change in land use regulation is taxed) or consequences for companies that buy land only to sell it in smaller plots for much higher prices (Van der Krabben, 2023; Zeeuw, 2023a, 2023b).

Dunning & Lord (2020) write about what role land value capture can play in dealing with climate change. Climate change needs to be addressed and invested in. According to Dunning & Lord (2020), land value capture can play a role in this. In my research this is something that I investigate more for the Netherlands. "Based on global experiences, incorporating climate change considerations into spatial planning emerges as a vital strategy to mitigate climate vulnerability and bolster urban resilience" (Zhou et al., 2023, p. 17). This is why spatial planning is an important tool to adapt to climate change. Spatial planning can be linked to financing climate adaptation. 'Good' climate adaptation reduces the vulnerability of people to (effects of) climate change (de Bruin et al., 2014).

In using land value capture to finance climate change, land value capture would not only focus on financing infrastructure, for example, but also on possible climate adaptation measures. Dunning & Lord (2020) note how climate change affects cities. Due to changing conditions of liveability of the city, real estate values might be changing as well. The relation between land value capture and climate change is then a relevant issue. In this research, I will build on this idea of Dunning & Lord (2020). The idea is supported by others as well. Wang et al. (2023), for example, have studied the relation between land-based financing and air quality in China. One of their results is that "the introduction of central government's environment-related policies and the increased significance of local residents' concern about environmental pollution do, however, incentivize local authorities to improve air quality with land finance" (Wang et al., 2023, p. 1084). Van der Krabben et al. (2023) focus on real estate developers' willingness to contribute to climate adaptation – via land value capture. They also argue that climate adaptation measures can have a positive impact on land/property value. This positive impact might make space for land value capture as a financing tool for climate adaptation measures. The (potential) land value increase could be a reason to capture 'more' value, which would allow for more money that is available to the government body to use to invest in climate adaptation measures (Grafakos et al., 2019).

Research about climate adaptation and land value capture in the Netherlands has not been done much. In this research, this is something that I specifically focus on. Land value capture knows different tools (on how to do it) and rationales (on why to do it). These land value capture tools and rationales differ per country. It is therefore useful to focus on one country and their land value capture tools and rationales. In this research, I focus on the Netherlands.

Furthermore, in this research the three phases of awareness, recognition and urgency as introduced by Hartmann & Spit (2014) are a central point. I focus on these phases because I believe that when actors – for example, developers – possess these three phases, it will be easier to stimulate investments in climate adaptation measures. There has not yet been research where these three phases are related to an actor's willingness to pay for climate adaptation measures, although other research (e.g., Van der Krabben et al. (2023)) does mention the importance of an actor's willingness to pay for these measures. Therefore this is something that I will focus on in this research (via the three phases of awareness, recognition and urgency).

I focus on these phases because I think that a sense of urgency regarding climate adaptation measures could be used to expand motivations for investments. The fact is that this is not necessary, there are policies where developers could be obliged to comply with rules and requirements regarding climate

adaptation measures. However, climate adaptation is something that needs to be taken into account and investing in these measures will be easier when all actors have the urgency to do so, rather than when they are simply obliged to do so. Additionally, the *policy arrangement approach* has not been used to study the way in which land value capture could account for financing climate adaptation measures. Overall, not much has been written about the role between land value capture and its possibilities for financing climate adaptation measures in the Netherlands. It is therefore relevant to find out more about the possibilities of land value capture.

1.4.2 Societal relevance

Next to the scientific relevance of this research, the research also has societal relevance. Societal relevance "refers to the extent to which a study is expected to contribute to the solution of social problems and questions" (Van Thiel, 2014, p. 187). In the topic of this research, land value capture and possibilities regarding financing of climate adaptation measures are central. In the report from Stec (2021), it shows that municipalities occasionally do not capture all costs that they are legally allowed to capture. Often, they only capture part or certain types of costs. It is then relevant to see why choices, for example like this, are made and whether or not there are consequences for spatial developments.

Climate adaptation is important in order to reduce the risks or effects of climate change. Climate adaptation measures do ask for investments. However, in the long run, these investments can save money by preventing certain events/disasters from happening. I propose land value capture as a possible tool to help close this climate financing gap. Land value capture can then be an investment in financing climate adaptation. Financing climate adaptation measures is crucial in 'steering' towards a more sustainable society in the Netherlands. It is therefore important to research different ways to tackle this financing issue. Climate adaptation measures can be beneficial for different actors, e.g., landowners, residents, cities, insurances or waterboards. Benefits of climate adaptation for these actors should be encouraged and therefore climate adaptation should be invested in. Both national and local governments thus need to address the financing of climate adaptation. When land value capture is a useful tool to finance these measures, it can give local governments more possibilities regarding this financing issue. The extra possibilities can be welcomed since they relieve some of the tension regarding the problem.

2. Literature review and theoretical framework

2.1 Research philosophy

For this research, I have chosen a research philosophy (or: research paradigm). “A paradigm may be viewed as a set of *basic beliefs* (or metaphysics) that deals with ultimates or first principles. It represents a *worldview* that defines, for its holder, the nature of the ‘world’, the individual’s place in it, and the range of possible relationships to that world and its parts, as, for example, cosmologies and theologies do.” (Guba & Lincoln, 1994, p. 107). I follow the argument of Guba & Lincoln (1994) who identify four possible paradigms in qualitative research. These are: positivism, post positivism, critical theory, and constructivism. Guba & Lincoln (1994) have studied all four paradigms on their ontology (what the researcher believes is real), epistemology (how you gather knowledge about that reality), and probable methodology (how the researcher can research their assumptions). Based on these different characteristics, one research paradigm can be chosen that fits best to this research.

The positivist and post positivist research designs focus on reality. In these paradigms, the researcher believes that there is only one ‘real’ truth that can be discovered. For post positivism, it is believed that this research is not always easy to understand. Overall, both positivism and post positivism use quantitative research methods. On the other hand, critical theory and constructivism use qualitative research methods. Here, unlike positivism and post positivism, the researcher does not believe that there is ‘one’ real truth that can be revealed. Instead, what is the ‘truth’ depends on historical events – critical theory – or is context-specific – constructivism. For this research I take on a constructivist approach. This paradigm fits the research since the research takes on a qualitative approach and focuses on land value capture in a specific context. In this way, I am able to draw context-specific conclusions at the end.

2.2 Literature review

2.2.1 Land value capture

Land value can be determined by several factors: “(1) public investments in infrastructure and social services; (2) changes in land use regulations; (3) population growth and economic development; (4) private investments that increase land value; and (5) the original productivity of the land” (Ingram & Hong, 2012, p. 4). When land value increases due to one of these factors (often in combination with a certain land-management tool) it is possible for government bodies to capture part of the value increase. This captured value is then used by that government body to invest in public facilities (Alterman, 2012). This is called land value capture. “Land value capture is used around the world to help fund transit, affordable housing, open space, and other public infrastructure” (Flint, 2022b, p. 19). Land value capture “refers to the ‘creaming off’ of increases in land value by a public body from the landowner, where the increased land value is the result of rezoning the land or public infrastructure provision” (van der Krabben et al., 2023, p. 134).

Rationales for land value capture

Land value capture is defined differently in different places. It can refer to policy instruments that take away ‘unearned increment’ from landowners without paying attention to the cause of the value increase, but also to policy instruments that take away part of the value increase of land when this is caused by land regulation of public investments (referred to as betterment capture) (Alterman, 2012). There are several rationales that support the use of land value capture (Healey et al., 1992). Kresse et al. (2020) differentiate between three rationales of land value capture. These are the following: 1) cost

equivalency, 2) externality mitigation, and 3) skimming of the development gains. The first one focuses on cost recovery. Here, "cost equivalent land contributions are calculated such, that land development, infrastructure, and services investments are self-financing with land values" (Kresse et al., 2020, p. 7). This rationale is supposedly able to assign the smallest burden to the landowners. It is a contribution in exchange for investments in public space. Land is sold in order to finance the development. The second rationale focuses on the mitigation of externalities. Here, landowners are obliged to compensate for any negative effects of a certain development. An example of this might be infrastructure costs when their development causes an increase in traffic which asks for redevelopment of certain roads. And finally, the third rationale focuses on skimming of the development gains. Here, part of the value increase – that is caused by a change in land use or another planning decision – is captured by a public body in order to invest in public facilities.

The idea of land value capture originated with Henry George's *single tax* idea. "He argued that if the rent from land alone (without the buildings and other "improvements') were to be paid to the government authority on an ongoing basis, it would suffice to finance the entire set of society's public needs. A tax on land would avoid causing the kind of economic turbulence that taxes on labor and mobile or financial capital inevitably create. […] George argued that public capturing of land values represents '... a takings by the community, for the use of the community, of that value which is the creation of the community'" (Alterman, 2012, pp. 4–5). Although the single-tax has hardly been used in practice, his idea of sharing the value increase with the public is used and supported still.

Macro, direct, and indirect land value capture instruments

Alterman (2012) proposes the following distinction of land value capture instruments: macro, direct, and indirect instruments. Firstly, macro land value capture instruments are part of (national) land policy. (Alterman, 2012, p. 8) notes that land value capture is embedded in the following four land policy regimes: 1) nationalisation of all land and direct government control over its use, 2) substitution of private property by long term public leaseholds, 3) and banking, and 4) land readjustment. " In all these land-policy regimes, land value capture is only one among several motivating rationales and objectives. However, once the new land regime has been in place for a few years, it will likely develop its own economic and political dynamics, and land value capture may be eroded away. With time, it may be difficult to determine how much of the plus value in fact reaches the community. The linkage between these macro land-policy regimes and land value capture could become remote" (Alterman, 2012, p. 8).

Secondly, direct land value capture instruments "are policies that seek to capture all or some of the value raise in real property under the explicit rationale that it is a legal or moral obligation for landowners to contribute a share of their community-derived wealth to the public pocket. As a wealth redistribution instrument, direct land value capture is often regarded as a tax and requires legislative authority" (Alterman, 2012, p. 9). She then divides direct instruments into two subtypes: *capture of the unearned increment* and *capture of betterment* (divided into *development-rights based betterment* and *infrastructure betterment*). Development-rights betterment capture is not used by many countries. Reasons for this vary among countries. However, Alterman (2012) proposes a few reasons for this. An example of why development-rights betterment capture is not used that much might be that betterment capture policies may rise "real-property prices because the price of land components would rise. If that were true it would erode away some of the justification for recapture policies" (Alterman, 2012, p. 16). Infrastructure based betterment capture focuses on capturing value increase off of properties where (property) value has increased due to changes in public infrastructure. However, it is not easy to link (property) value to public infrastructure; for example: is the causal

relationship actually there, and if so, how strong is this causal relationship? This might make infrastructure based betterment capture tools somewhat difficult to use.

Finally, indirect land value capture instruments "do not seek to capture the added value for its own sake, because it is "unearned", but in order to generate revenues (or in-kind substitutes) for specific public services. Indirect instruments are usually practised on the local-government level. The objectives behind the indirect tools are usually more pragmatic and less ideological than the objective behind either the macro or the direct capture instruments. To survive legal and political challenges, the indirect instruments usually need the "cover" of other rationales beyond the desire to capture the unearned increment. It is easy to confuse the indirect instruments with the direct ones because both types harness the same source of wealth – the additional value of real property derived from government land-use and development decisions" (Alterman, 2012, p. 10). There are several different indirect land value capture instruments. Alterman (2012) introduces the following: developer obligations, exactions, developer agreements, planning obligations, impact fees, linkage fees, incentive zoning, participation, and cost recovery. Although direct land value capture instruments are not used as much, there are still governments who want to capture unearned increments. When this is done through indirect land value capture instruments, there is a focus on other tools than direct taxes. Also, the 'unearned increment' rationale is then often not the only justification for land value capture, but accompanied by other rationales.

Developer obligations

I will not discuss all land value capture tools. However, I do briefly want to focus on developer obligations (DO's) since the difference between negotiable developer obligations (NDO's) and non-negotiable developer obligations (N-NDO's) will be mentioned in chapter 4 on the results as well. In Dutch, this instrument is called *exploitatiebijdrage* or *exploitatieplan*. Developer obligations compensate the impacts of (new) development on local infrastructure. Muñoz Gielen et al. (2022, p. 1) define DOs as "the contributions made in exchange for land-use regulation decisions." Developer obligations are mostly based on voluntary agreements between developers and public bodies. Here, "developers provide land, public spaces, roads and parking space (*exploitatiebijdrage*). […] If no agreement is made, municipalities can impose a fee to be paid in cash (*exploitatieplan*). Municipalities always implement developer obligations and collect the revenues" (OECD/Lincoln Institute of Land policy, PKU-Lincoln Institute Center, 2022, p. 177). The fee is based on the costs of the public infrastructure, the land value and the market value of investment. It covers both on-site infrastructure costs, as well as directly-connected off-site infrastructure costs. It can include non-directly-connected off-site infrastructure costs as well, but this is not a necessity (OECD/Lincoln Institute of Land policy, PKU-Lincoln Institute Center, 2022). Private developers in the Netherlands contribute part of the construction costs for on-site infrastructure (roads, sewerage, parks, etc.) and they contribute an important part of the required land that is needed for on-site public infrastructure (Muñoz Gielen et al., 2022).

There are two sorts of developer obligations: non-negotiable developer obligations (N-NDO) and negotiable developer obligations (NDO). "N-NDOs have a statutory character, i.e. they are prescribed in national/regional legislation, and/or in legally binding local policy and can, in theory, thus be prescribed without negotiation. […] N-NDOs have less of a local character than NDOs. NDOs are only vaguely regulated in regional/national legislation".(Muñoz Gielen & Lenferink, 2018, pp. 771–772). N-NDOs offer in practice room for negotiations (Muñoz Gielen & Van der Krabben, 2019).

An N-NDO is a development contributions plan (*exploitatieplan*). "When land-use regulation decisions rezone land (e.g. from agricultural to any urban use or from industrial to housing) and/or increase the

building possibilities (e.g. from single family dwellings to an apartment building), and provided that there are costs to be made for public infrastructure which have not yet been secured, the municipality 'must' approve a Development Contributions Plan together with the land-use regulation decision" (Muñoz Gielen & Lenferink, 2018, p. 777). An NDO is development agreements (*anterieure overeenkomst*). This is "the possibility of negotiating developer obligations in a development agreement. Here, the municipality and the land developer agree who is going to pay for the public infrastructure" (Muñoz Gielen & Lenferink, 2018, p. 778).

2.2.2 Climate adaptation

Climate adaptation measures can decrease the vulnerability of citizens to negative effects of climate change that the measures address (de Bruin et al., 2014). Deloitte (2020) differentiates between two other benefits of investing in climate adaptation measures. The first one is that investments in climate adaptation measures might lead to a value increase for property. The second benefit is that structural costs might decrease. Both of these benefits would be a solid basis for arguments in favour of (more) climate adaptation measures. It is important to note, however, that these benefits might differ from place to place and time to time. Therefore, it is not a guarantee that these benefits are always present. Furthermore, De Bruin et al. (2014) make a distinction between primary and secondary benefits of climate adaptation. Primary benefits correspond with the aim of the climate adaptation measure. They are able to avoid direct damage, for example. Secondary benefits relate to benefits that are a result from the adaptation but that do not correspond with the aim of the climate adaptation measure. This can include a change in the characteristics of the landscape when water and nature areas are created, for example.

Currently, climate adaptation measures in the Netherlands are financed via several means. Think about government funding, a national climate adaptation strategy, public-private partnerships, European Union funding, or private investments. There is a so-called financing gap when it comes to climate adaptation measures. This financing gap is not only a national problem, but a global one. Some effects of climate change can be addressed properly when they are addressed on a bigger scale, take sea level rise for example.

Some research calls for land value capture as a tool to partially finance climate adaptation measures (Dunning & Lord, 2020; Flint, 2022b; Van der Krabben et al., 2023). However, "governments will also need to keep in mind that land-based finance is just one way to fund climate and environmental initiatives, more suitable for closing gaps than for serving as the sole or primary source of revenue for a carbon-neutral world" (Flint, 2022b, p. 24). In my research I therefore pay attention to the possibility of incorporating more attention to climate adaptation in the negotiation processes of land value capture in the Netherlands.

However, investing in climate adaptation measures through land value capture only makes sense when the problem is clear for all actors that are involved (McNeeley & Lazrus, 2014). Hartmann & Spit (2014) note that there are three stages that need to be optimised in order for a problem to be addressed in an effective way. These are awareness, recognition, and urgency. The process must start by generating awareness of the problem. In this first stage it is thus important that the problem is starting to be recognised by the relevant actors. After this second stage of recognition, a sense of urgency regarding the problem can be created. In this final stage, "a common strategy can be developed in which priorities are set, instruments developed, and investment schemes agreed upon" (Hartmann & Spit, 2014, p. 250). I believe that these three stages need to be present in addressing a problem before it is possible to effectively address that same problem. However, it is generally the case that policies prescribe what needs to happen. This means that this is what actors are required to do. In the case of

climate adaptation, it can thus be mandatory for actors to participate in climate adaptation investments through policy and regulation. In the light of this research, it might then be the case that it is mandatory to invest in climate adaptation through land value capture. Even though this might be the case, I do believe that the internal motivation of actors regarding investments in climate adaptation is important as well, since climate adaptation is still something that is largely dependent on preferences (for example, whether political views find it important or whether cost savings would come at the cost of climate adaptation) of relevant actors or politicians. A solid basic understanding of the need of climate adaptation is thus necessary, which is where the internal motivation of the actors that are involved is useful.

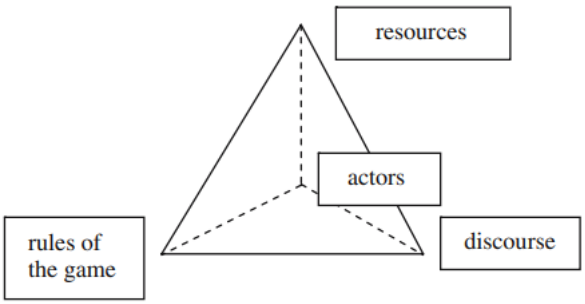
2.3 Theoretical framework and operationalisation

Policy

In this research I have based my research questions and operationalisation on the Policy Arrangement Approach by Arts et al. (2006). This approach "aims to link structural political changes and strategic policy renewal" (Arts et al., 2006, pp. 93–94). It was designed to study policy change in the field of environmental policy. In my research, this is not exactly what I will focus on. Furthermore, "the overall objective of the policy arrangements approach is to analytically link changes in day to day policy practices to broader, structural changes in contemporary society" (Liefferink, 2006, p. 45). This is not something that I will focus on as explicitly as it is intended in the approach. Rather, I use the approach as a tool that guides me into the right direction regarding different dimensions around policy that are relevant in studying policies. I base these dimensions on the four domains that the approach focuses on. These domains are crucial in understanding the policy arrangements that you want to study. Arts et al. (2006) introduce and define the following four domains:

- "the *actors* and their *coalitions* involved in the policy domain;
- the division of power and influence between these actors, where *power* refers to the mobilisation, division and deployment of resources, and *influence* to who determines policy outcomes and how;
- the *rules of the game* currently in operation, both in terms of actual rules for political and other forms of interaction, and in terms of formal procedures for pursuit of policy and decision-making; and
- the current policy discourses and programmes, where the concept of *discourse* refers to the views and narratives of the actors involved – in terms of norms and values, definitions of problems and approaches to solutions – and the concept of *programme* refers to the specific content of policy documents and measures" (Arts et al., 2006, p. 99).

FIGURE 1 THE TETRAHEDRON: FROM ARTS ET AL. (2006, P. 99)



The four domains are interwoven, which is visualised by a tetrahedron as can be seen in Figure 1. Change in one dimension leads to change in the other dimensions; they are dependent on each other. This also means that when there is a change in a certain domain, the entire policy arrangement might change as well (Arts et al., 2006). This part of the approach – the interwovenness between the four different domains – is crucial in understanding policy, and therefore it is necessary to gather insights in all four domains. As I have introduced in chapter 1.3 on my research questions, I have applied this approach in the formulation of my research questions. I have done this by creating research questions that can all be linked to one (or more) of the dimensions. These relations between the research questions and the four domains as introduced by Arts et al. (2006) can be found in Table 2.

TABLE 2 RELATIONS BETWEEN RESEARCH QUESTIONS AND THE FOUR DOMAINS

RQ	Actors	Resources	Rules of the game	Discourse
1			X	
1A	X			
1B			X	
2	X		X	
2A	X	X		
2B	X	X		
3			X	X
3A	X			X
3B				X
3C				X
3D		X	X	X

I have operationalised the four different dimensions in Table 3. This operationalisation is inspired by Wiering & Arts (2006, p. 328). In their research, they use the Policy Arrangement Approach to study changes in Dutch river management. Furthermore, they have developed an operationalisation scheme. I take inspiration from this scheme – which can be found in Wiering & Arts (2006, p. 328) – and have developed my own operationalisation scheme, as can be seen in Table 3Table 3. For all four dimensions I have written down some indicators. These indicators are the aspects of the dimensions that I will study. I study all dimensions via the definition of these dimensions as was introduced by Arts et al. (2006), except for the first dimension that focuses on the *actors*. According to their definition, one would look at the actors themselves, as well as the coalitions that they form. In this research I do not focus on the latter since I am mainly interested in the actors themselves and not as much in the relations and coalitions that they form, which is why I have decided to leave this out of the study.

TABLE 3 OPERATIONALISATION OF THE FOUR DIMENSIONS

Dimension	Indicators
Actors	Actors themselves: who is allowed to participate in the negotiations Interactions between actors
Resources	Resources of the actors: knowledge or expertise that the actors hold Power relations between the actors Influence of political choices/preferences
Rules of the game	Formal rules: what land value capture in the Netherlands is used for and what the negotiations (should) look like
Discourse	Policy: on climate adaptation and sustainability Habits/norms: what the actors' ideals of climate adaptation look like

Climate adaptation

Climate adaptation measures do ask for investments. In this subchapter, I discuss the willingness – of actors – to pay for certain investments. In this research, I mainly focus on investments regarding climate adaptation measures. With willingness to pay, I refer to actors' willingness to pay and invest in climate adaptation measures. Firstly, I want to refer to (Hartmann & Spit, 2014). In their paper, *Capacity Building for the Integration of Climate Adaptation into Urban Planning Processes: The Dutch Experience*, they address multiple aspects that I find interesting for my research as well.

The first aspect they address that I find interesting is the fact that climate adaptation comes with some challenges. They address three challenges (that they have taken from van Buuren et al. (2013)), these are the following: specific uncertainties, competing issues, and multifaceted character. When making spatial plans, it is crucial to address all of these challenges appropriately.

The second aspect they address that I find interesting is that of capacity building. They introduce this as a three-stage procedure. The three stages are awareness, recognition, and urgency. I have also introduced these stages in chapter 2.2.2 on climate adaptation. I do want to emphasise here that I focus on these stages in my research. I do this by studying whether or not the actors involved in the land value capture negotiations are aware of the benefits of climate adaptation, whether or not they recognise that they can – perhaps even should – contribute to these measures, and, finally, whether or not they recognise this as an urgent problem.

These three stages refer to a certain willingness that actors have to contribute to a certain problem. In the case of this research, this can be referred to as the actors' willingness to pay for climate adaptation measures. Even though the actors might be aware of recognise the benefits of climate adaptation, this does not automatically mean that they find it to be an urgent issue as well.

Van der Krabben et al. (2023) address this as well. In their paper, *Willingness to Pay for Climate Adaptation: International Case Studies on Private Developers' Preparedness to Contribute to Urban Climate Adaptation*, they elaborate on this topic. The willingness of actors to contribute to public goods, climate adaptation measures in the case of this research, is "influenced by the utility that it gives. This means that parties are willing to contribute as long as their perceived utility exceeds current utility" (Van der Krabben et al., 2023, p. 11). In my research, I will study through the interviews whether or not actors are willing to contribute to climate adaptation measures and if they feel a (social) responsibility to do so.

3. Methodology

3.1 Research strategy

In this chapter, I focus on my research strategy and methodology. I base this on (Van Thiel, 2014) who writes about research methods. Van Thiel (2014, p. 57) defines the research strategy as "the overall design or logical procedure that will be followed." She introduces four possible research strategies: experiment, survey, case study, and desk research. Within each research strategy, different methods are used. In this research, my research strategy is a combination of desk research (for which I will use scientific papers and policy documents to gather my data) and a primary data collection (for which I will collect primary data through interviews). This research thus takes on an explorative and qualitative approach. In the following sub chapters I delve deeper into my data collection and analysis processes.

3.2 Data collection and data analysis

3.2.1 Data collection

Van Thiel (2014, p. 59) introduces several methods that all align with a certain research strategy. For desk research, these methods are content analysis (interpreting the content of certain documents), secondary analysis (analysing existing numerical data anew), and meta-analysis (giving an overview of the results of previously conducted research). Since secondary analysis is mainly quantitative, this is not something I will use in my research. For case studies, there are multiple methods available as well. These are: observations, questionnaires, and interviews. In my research, I will not focus on just one method of data collection. Instead, I focus on triangulation of methods by using multiple methods to collect data. I will focus on content-analysis (via which I focus on the content of certain (policy) documents), meta-analysis (via which I study previously conducted research), and semi-structured interviews (via which I gather primary data). I use the content- and meta-analyses to determine what factors need to be researched more. I will then do this via semi-structured interviews with experts and practitioners.

Interviews

I have held several interviews with professionals in spatial planning in the Netherlands. To be exact, I have conducted eleven interviews with twelve interviewees. Table 4 shows an (anonymised) overview of the interviewees and their functions. The interviews have taken place over six weeks and all lasted about thirty minutes.

I have conducted semi-structured interviews. This means that I have developed an interview guide, but that I do not strictly limit myself to the questions that I have formulated in that interview guide. The interview guide (in Dutch) of the interviews can be found in Appendix A. I have also provided an English version of the interview guide. This one can be found in Appendix B.

TABLE 4 OVERVIEW OF THE INTERVIEWS AND INTERVIEWEES

	Interviewee	Organisation
Interview 1	Interviewee 1	University
Interview 2	Interviewee 2	Consultancy firm
Interview 3	Interviewee 3a Interviewee 3b	Consultancy firm
Interview 4	Interviewee 4	Consultancy firm
Interview 5	Interviewee 5	Consultancy firm

Interview 6	Interviewee 6	Municipality
Interview 7	Interviewee 7	Municipality
Interview 8	Interviewee 8	Municipality
Interview 9	Interviewee 9	Consultancy firm
Interview 10	Interviewee 10	Municipality
Interview 11	Interviewee 11	Municipality

3.2.2 Data analysis

After the data has been collected, it needs to be analysed. For both quantitative and qualitative data, it is important that this is done in a systematic way. Therefore, it needs to be clear what information is needed for the research and this information needs to be studied thoroughly. For this research, I therefore focus on information that is able to answer my main research question and its accompanying sub questions. The use of multiple methods of data collection and analysis, increases the validity and reliability of the research, which I will expand on more in the next sub chapter 3.3. The collected data for this research is qualitative.

Through interviews, I thus gathered my primary data. These interviews need to be analysed properly. I first created transcripts of all interviews so that I could analyse these interviews and what was said via an analysis programme. Through this programme I could mark and connect parts of different interviews to each other by adding codes. After I had transcribed all of the interviews, I began analysing them. Through the use of codes I was able to categorise relevant information from different interviews together. The codes that I have used can be found in the codebook in Appendix C. I analysed the interviews by categorising the codes per sub research question. After this, I followed the same order of the research questions and looked at each code one by one. I then compared the answers that were given by the interviewees, and answered the sub research questions.

3.3 Validity and reliability of the research

All research needs to be valid and reliable. In this way, we can make sure that the results of the research are accurate. For quantitative research, this is somewhat clear and static. Overall, we can say that there is one real 'true' outcome. For qualitative research, this is a bit more unclear since the analysis is easily influenced by the standpoint of the researcher; it is thus often quite subjective. Although this might be the case, for the relevance and accuracy of the research this subjectiveness needs to be taken away as much as possible.

3.3.1 Validity

Validity refers to the accuracy of a certain measurement method. Here, it is important to ask whether the results really do represent what they are supposed to have measured. There are two types of validity: internal and external (Van Thiel, 2014). "Internal validity refers to the cogency of the study itself: has the researcher really measured the effect they intended to measure? What matters here is: whether the presupposed (causal) relationship between the independent and the dependent variable actually does exist" (Van Thiel, 2014, p. 49). "External validity describes the extent to which a study can be generalized: do research results also hold for other persons, institutions, moments in time or locations" (Van Thiel, 2014, p. 49). In order to ensure validity, it is important to use correct methods to study and collect the data. If applicable, the right sample size must be selected.

3.3.2 Reliability

"The reliability of a study is a function of: 1) the accuracy, and 2) the consistency with which the variables are measured. The more accurately and consistently the variables are measured, the more certain it is that results will not be coincidental, but paint a systematic and representative picture" (Van Thiel, 2014, p. 48). Reliability thus means that the conclusion that is made in the research is correct (and that other studies would come to the same conclusion). Accuracy refers to the instruments that are used to measure. Consistency refers to repeatability of the results. This is something that is often harder to achieve in qualitative research (especially in social sciences). However, Van Thiel (2014) introduces several ways of increasing the reliability of a research. She notes the importance of creating a sample that is large enough, the possibility to repeat someone else's study, and ensuring that one's measurement instruments are correct.

To ensure that my research is valid as well as reliable, I focus on multiple methods (triangulation) to collect my data and create a systematic way of analysing the gathered data. My main method of data collection is through semi-structured interviews. It is then important that enough interviews are held, since this increases the accuracy of the interviews and thus of the research. Therefore, I conducted eleven interviews. To systematically analyse these interviews, I developed transcripts of all interviews. In this way, I can easily reread and compare the interviews.

4. Results

4.1 Land value capture in the Netherlands

As I have introduced before, land value capture instruments in the Netherlands come with negotiations about the relevant development plans. These negotiations shape the plan. It is therefore relevant to see how these negotiations go about and whether they are as efficient and effective as one would want them to be. In this sub chapter 4.1 I answer the first sub research question (i.e., *how do the land value capture negotiations in the Netherlands work?*) of this research and its two complementary follow-up questions. A short overview of all of the findings can be found in Table 5, page 31.

4.1.1 Actors

In this chapter 4.1.1 I will answer the following question: *who is allowed to participate?* I will answer this question based on information I found through desk research and interviews.

The following actors (can) take part in a negotiation process: municipality, developer, housing corporation, and landowner. In general, a municipality and developer are always present in the process. A housing corporation could be present when it is working as a developer. The landowner is an actor that does not necessarily participate in the negotiations, but since either the municipality or the developer are often landowner of the plot that is going to be developed, the landowner is also often present in the negotiations.

The municipality and developer thus take part in the land value capture negotiations. However, they are not necessarily also the actors that are involved in investments in climate adaptation (Interviewee 1, personal communication, August 22 2024). That is one of the difficulties of land value capture; investments in climate adaptation could only partially be taking place in the area that is being developed. In fact, those investment could even be taking place elsewhere in that municipality, or in a totally different municipality.

The initiator of a project can either be a municipality that wants that certain plot of land to be developed, but it can also be a developer who is landowner of that plot of land (Interviewee 8, personal communication, September 13 2024). In both situations the municipality is usually the first actor to make demands regarding the realisation of the project (Interviewee 10, personal communication, September 16 2024).

Next to the actors that take part in the negotiations, there are other actors that should be mentioned as well. These actors are parties that have interests in the project. An example of this was given by interviewee 1 (personal communication, August 22 2024). He mentioned two parties who appealed to a project. These two parties were *Rijkswaterstaat* and *Hoogheemraadschap*. Rijkswaterstaat is part of the ministry of Infrastructure and Water Management. Its role is managing and developing public space, focusing on roads, waterways, and flood protection. *Hoogheemraadschap* is a traditional name for a *Waterschap*, i.e. a water board. A water board is in charge of the water management of that certain region.

Even though neither *Rijkswaterstaat* or *Hoogheemraadschap* are involved in the negotiation process, they do have interests in the project. Since they are able to appeal to that project, they can have some sort of influence on the negotiations. They will demand certain extra measures to be taken in order to "approve" of the project. More measures will most likely lead to more investments, making it that the land value capture will probably be higher as well.

Other actors that have interests in the projects, are the future residents or owners of the project that is being developed. They have interests in the project, but they are not involved in the negotiations. However, certain demands/wishes that future users of the project might have could definitely be accounted for in the project. In chapter 4.3 I delve deeper into this topic when I am focusing on demands for climate adaptation.

Next to actors that take part in the negotiations or that have interests in the project, there are some other actors that I want to highlight as well. These actors do not take part in the negotiations, but their influence can be of importance in the development of the negotiation and its project. An example of such an actor is the province. Since provincial (and national) policy shapes the way for municipal policy, they can be rather influential for a project. According to interviewee 5 (personal communication, September 5 2024), provinces are often more active in sustainability policy, which means that projects in that province all need comply with that policy. As mentioned before, a water board can be influential as well. They can also develop policies that projects need to comply with. These policies have a higher ranking than municipal policy, making it that it is mandatory for projects to comply with the policy established by the water board (Interviewee 11, personal communication, September 27 2024).

In chapter 4.2 I delve deeper into the relations between actors, as well as their expertise and power in the land value capture negotiations.

4.1.2 Relevant policies

In this chapter 4.1.2, I will answer the following question: *what relevant policies are there?* There are several rules/policies that are influential on land value capture and that have been mentioned multiple times by the interviewees. I will discuss the following: 1) *Besluit bouwwerken leefomgeving*, 2) *water en bodem sturend*, 3) *Wet voorkeursrecht gemeenten*, and 4) *zelfrealisatierecht*. All of these policies have been mentioned by the interviewees as basic guidelines. For example, the first two policies have been referred to when we talked about climate adaptation. These policies form a basis for climate adaptation policy. The other two policies have been referred to when we talked about the power that actors hold in the negotiations, which is something that I will discuss more in sub chapter 4.2 on the land value capture negotiations.

The first policy that was mentioned often by the interviewees is *Besluit bouwwerken leefomgeving*. This law (which is now called *Besluit bouwwerken leefomgeving*, previously *bouwbesluit*) contains rules and measures that buildings need to meet regarding the safety, health, usability, sustainability and environment. These rules are thus aimed at the buildings and are the minimum (nationally) that developments have to meet. Rules regarding public space would have a place in other policies and can for example also be determined in land value capture (IPLO, n.d.-a).

The second policy is *water en bodem sturend* (English: water and soil as guide). This policy determines that both water and soil should be guiding in the choices that are made in spatial planning (Rijksoverheid, 2022). It means that conscious choices regarding these topics should be made. Sustainable choices are an important factor in this.

The third policy is *Wet voorkeursrecht gemeenten* (English: Municipalities Preferential Rights Act). This policy can force landowners to give the municipality the first opportunity to purchase the land when the landowner is selling their land. Because of this act, it might be easier for municipalities to acquire land (IPLO, n.d.-b).

The final policy is *Zelfrealisatierecht* (English: self-realisation right). This right allows landowners to have the first right to develop their land. However, they should be able and willing to do so, and

sometimes you can question whether this is actually the case (Interviewee 2, personal communication, August 23 2024).

Now that I have answered the two complementary research questions to the first sub research question, I will now answer the first sub research question (i.e., *how do the land value capture negotiations in the Netherlands work?*). I first want to focus on the actors that take part in the land value capture negotiations. Two actors are always part of these negotiations, i.e., municipality and developer. Next to that, occasionally housing corporations and landowners could take part as well. Generally, the municipality is the actor that sets the first demands. Furthermore, there are other actors that can have interests in the projects. These actors could be future residents or owners of the project, or parties like water boards. Next to the actors that take part in the negotiations, there are several policies that determine what demands spatial planning projects in the Netherlands need to meet. Examples of these policies include *Besluit bouwwerken leefomgeving* (which sets rules for buildings), *Water en bodem sturend* (which determines that water and soil should be central in decision making around spatial plans), *Wet voorkeursrecht gemeenten* (which forces landowners the first give the municipality the opportunity to buy their land when they are willing to sell), and *Zelfrealisatierecht* (which gives landowners the first right to develop their land).

4.2 Land value capture: negotiations

In this subchapter 4.2 I answer the second sub research question (i.e., *what do the land value capture negotiations look like for the participating actors?*) of this research and its two complementary follow-up questions. I focus on the relations between actors, and the power and expertise that the actors hold in the negotiations.

Next, I will answer the first and second complementary research question (i.e., *what resources do the actors have in the negotiations?* And *what influences do the actors have? Who determines policy outcomes and how?*). I have taken the concept of "resources" from the Policy Arrangement Approach by Arts et al. (2006) that I have introduced in the theoretical framework of this research in chapter 2.3. Arts et al. (2006, p. 99) refer to resources as "the division of power and influence between these actors, where *power* refers to the mobilisation, division and deployment of resources, and *influence* to who determines policy outcomes and how." I operationalised this dimension in the following way: a) resources of the actors: knowledge or expertise that the actors hold, b) power relations between the actors, and c) influence of political choices/preferences. These three points have been included in the formulation of these two complementary research questions and I will discuss point A and B in this chapter. In chapter 4.3.3 I will discuss point C.

4.2.1 Knowledge/expertise

The first point I address is that of the knowledge and expertise that the actors hold. Here, I focus on the expertise they have to perform good spatial planning, but also the expertise they have in the land value capture negotiations. Having expertise in something is important since it allows you to get the most out of the situation.

Expertise differences between different actors, developer and municipality, were not really acknowledged by the interviewees. An example of this can be seen in interview 7. The interviewee, who works for a municipality, mentioned that he does not feel like he has a knowledge lap in relation to the developers who he negotiates with. He did emphasise that he himself does indeed not know everything about such a project that he is negotiating about, but he did not feel like the developers know more. Regarding his negotiating position, he felt like he knows what he can and cannot do (Interviewee 7, personal communication, September 12 2024).

The interviewees who acknowledge expertise differences, mainly saw these differences between smaller and bigger municipalities. Smaller municipalities have the same responsibilities as bigger municipalities, but they often have less employees to face all these responsibilities. This then leads to them not being as specialised in all responsibilities as bigger municipalities might be. Smaller municipalities would then be more inclined to look for that expertise in an external consultancy company (Interviewee 5, personal communication, September 5 2024; Interviewee 9, personal communication, September 13 2024). In smaller municipalities they often do not even have their own staff either, instead people are hired when needed. Another thing that might be important in this is that the salary that a bigger municipality would offer is often higher than what the smaller municipality offers. This means that the best people often end up at the biggest municipalities (Interviewee 6, personal communication, September 6 2024). Smaller municipalities thus hire people with expertise externally (Interviewee 4, personal communication, September 2 2024). However, interviewee 7 mentioned that his municipality (which is a bigger municipality) hires experts externally as well. The difference with smaller municipalities would then be that they only hire people for very specific information, whereas the smaller municipalities might be forced to hire knowledge externally sooner (Interviewee 7, personal communication, September 12 2024).

Internally in the municipalities themselves, knowledge and expertise levels can differ as well. This means that people all working for the same municipality might have a lot of knowledge of their own policy domain, but the knowledge that they have of other policy domains might differ (Interviewee 3b, personal communication, August 29 2024).

4.2.2 Power relations

The second point I address is that of the power relations between the actors that participate in the land value capture negotiations. I focus on three actors: municipalities, developers, and landowners. An important thing to notice is that all actors are dependent on each other to make a project happen. This is also the reason why negotiations need to be held; all parties want a development, but they do not yet agree on what that development should look like and how it should be executed. Through the interviews, several things came to light regarding the power relations.

Municipalities need landowners and developers in order to be able to execute projects. Especially if the municipality does not own the land, they will have to discuss with the landowner on what to develop on that land. This means that the municipality is then more dependent on cooperation of the developer. The developer will cooperate with the municipality since developers and landowners need the municipality in order to get approval to execute the project. If they do not get this approval, they could not be allowed to develop what they want to develop, meaning that they own land with which they cannot do what they want in order to make money. Therefore, they often have to make some compromises with the municipality so that they can still develop and make a profit.

A private party (developer or private landowner) is usually well informed about current and market-conform principles. However, he will never immediately show all steps he is willing to take, it is still a negotiation where he wants to explore and maximise his options. Municipalities often have different positions in this. For example, they have policy documents that include their wishes and ambitions. Because of this, their negotiation position is slightly different from that of the developer. However, municipalities will not immediately show all steps/concessions they are willing to take either (Interviewee 3a, August 29 2024).

Some interviewees thought the municipality was always the most powerful actor in a negotiation. Take interviewee 10, for example. She mentioned that the municipality is more powerful than the developer, because the developer is dependent on the municipality for co-operation (Interviewee 10,

personal communication, September 16 2024). The municipality is even more powerful when they are the landowner as well since they are then allowed to sell the land to whoever they want. This means that they can sell the land under specific circumstances/rules with additional requirements for the project (Interviewee 8, personal communication, September 13 2024). If the municipality is not the landowner, the municipality has quite some power still as well. This is especially the case when the proposed development (by the developer/landowner) does not match the policy. If it does match policy, the influence and power of the municipality is lower (Interviewee 6, personal communication, September 6 2024). If the municipality is landowner, they can set up some rules that the developer needs to meet. An important policy that should be mentioned here is Didam-arrest. The Didam-arrest prevents that municipalities sell land/property without giving multiple interested parties the possibility the buy the land/property. This means that the municipality cannot immediately sell it to a specific party (Fokkema, 2022).

A landowner's power is created by the *zelfrealisatierecht* (Interviewee 2, personal communication, August 23 2024; Interviewee 9, personal communication, September 13 2024). Because of that right a landowner's land cannot just be taken by the municipality. This forces the municipality to cooperate with the landowner. You can thus say that a landowner has quite some power, due to *zelfrealisatierecht* (Interviewee 9, personal communication, September 13 2024). When a developer owns a certain plot of land, the developer can appeal to the *zelfrealisatierecht* because he is able and willing to develop that land. This means that he does not need to sell his land to the municipality. If a municipality want a certain area to be developed, and that land is not owned by the municipality, the landowners can be powerful in the negotiations about how that land is supposed to be developed (Interviewee 2, personal communication, August 23 2024). An important factor that Interviewee 2 mentioned here, is that this system can create a certain drive for developers to buy land; if their negotiation position is stronger when they are the landowner, this is more attractive for the developers since it might allow them to negotiate in such a way that they are able to create a project that is more profitable/interesting for them. So the actor that is landowner has quite some power. With bigger/more landownership this is even more important (Interviewee 2, personal communication, August 23 2024).

However, it should be emphasised that the landowner is not explicitly the most powerful actor in a negotiation. This is because both parties (landowner and municipality) need each other. This leads to constant discussion of what to do. Interviewee 3b noticed that the landowner might be slightly more powerful, but still in need of cooperation of the municipality (Interviewee 3b, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024).

To summarise, we can thus say that there is not one actor that is always the most powerful due to the dependence of both actors on each other. However, landownership is an important factor to take into consideration here.

Due to the housing crisis, there is more pressure on efficient and correct use of land policy instruments. This explains calls for more use of *Municipalities Preferential Rights Act* and expropriation. When municipalities show their teeth more often and are willing to expropriate landowners, the relationships between municipalities and developers or landowners might change (Interviewee 2, personal communication, August 23 2024). However, this change in dynamics between municipalities and developers/landowners does come with some notes. The fact that all involved actors are dependent on each other means that dynamics – and thus power relations – will not change substantially, this is thus a rather big critical point of this potential change in dynamics.

Now that I have answered the two complementary research questions to the second sub research question, I will now answer the second sub research question (i.e. *what do the land value capture negotiations look like for the participating actors?*). In answering this question I focus on two things: expertise and power. In chapter 4.2.1 I noticed how there are not much expertise differences between the actors that participate in the land value capture negotiations. This means that both the developers and the municipalities have enough expertise to successfully complete the negotiations. Most expertise differences can be seen between the municipalities themselves, where smaller municipalities look for expertise externally more often that bigger municipalities. In chapter 4.2.2 I focused on the power relations between actors in the land value capture negotiations. All actors in the negotiations are dependent on each other in order to be able to develop. For both the developers and the municipalities, landownership strengthens their negotiations position. The municipality is then able to formulate specific requirements for the project. When a developer is landowner, it is easier for them to negotiate on things they and the municipality do not agree on. However, the power of the landowner (especially when the landowner is a developer) should not be overestimated. The negotiation process is still exactly that: a negotiation. All parties in that process need each other to come to a successful project.

4.3 Land value capture: climate adaptation

In this subchapter 4.3 I answer the final sub research question (i.e. *how can land value capture (and the negotiations) be optimised in order to make it more efficient in accounting for climate adaptation?*) of this research and its four complementary follow-up questions.

It is necessary that climate adaptation measures are introduced – both in existing urban areas as well as in 'empty' landsites. Through proper application of climate adaptation measures, consequences of climate change can be addressed and dealt with in an effective way. It is therefore important that climate adaptation is included in (urban) planning projects. Challenges in dealing with rainfall, subsidence, floods, heat, drought, or biodiversity can be addressed by climate adaptation measures. Examples of these measures may include green roofs, greenery in gardens, more greenery in the public spaces, etc. (Deloitte, 2020).

Climate adaptation measures serve as an investment in the urban environment. By implementing climate change adaptation measures, (bigger) problems/consequences of climate change might be prevented. In this way, structural costs might decrease as well (Deloitte, 2020). Furthermore, land values may increase due to the implementation of climate adaptation measures (Deloitte, 2020; Van der Krabben et al., 2023).

4.3.1 Financing climate adaptation through land value capture

I want to focus on the possibilities of land value capture to finance climate adaptation. Currently, land value capture and climate finance are not related much in the Netherlands. However, land value capture might be a useful tool to (partially) finance climate adaptation measures (Dunning & Lord, 2020; Flint, 2022b; Van der Krabben et al., 2023). But, "governments will also need to keep in mind that land-based finance is just one way to fund climate and environmental initiatives, more suitable for closing gaps than for serving as the sole or primary source of revenue for a carbon-neutral world" (Flint, 2022b, p. 24). I will explore the possibility of land value capture to finance climate adaptation measures more in this sub chapter.

Examples from abroad show possibilities of land value capture as a financing tool for climate adaptation measures. For example, land value capture is used in Boston to finance climate adaptation. There, land value capture focuses on capturing value increase of land after government action and

public investment (Flint, 2022a). Also in Miami the possibility of land value capture as a financing tool for climate adaptation is considered (Flint, 2020). In Boston, developers contribute to a "*Climate Resiliency Fund* which is used to help finance the berms, seawalls, and natural systems that will help protect real estate in the vulnerable Seaport district and other potential flooding hotspots" (Flint, 2022a). The fund recognises the following idea; investments in public space (including crucial infrastructure) can boost property values and which benefits the private sector. It is then logical for these developers in the private sector to contribute to such a climate fund. However, land value capture negotiations do not play a as big a role in this since it is already mandatory to contribute to the fund; this is thus not something that can extensively be negotiated.

Such climate funds are not yet always standard practice in the Netherlands, but they do take place. An example of this was given by Interviewee 5 (personal communication, September 5 2024) when he mentioned that municipalities are able to require investments or contributions into a fund. The interviewee has seen cases where it was mandatory to contribute to a fund for nature management at the construction of a recreational area, for example. In the following chapters 4.3.2 through 4.3.3 I explore climate adaptation and land value capture in the Netherlands.

4.3.2 Current situation

In this chapter 4.3.2, I will answer the first complementary research question (i.e., *how aware are actors currently of the need for investments in climate adaptation*?).

In spatial planning, there are multiple goals that need to be achieved. Examples of this are housing, affordability, or sustainability. A lot of public goals require public space. Public space is used more and more, making it even more challenging to combine all goals. In my thesis, I focus on the public goal of sustainability with a focus on climate adaptation. Climate adaptation in public space is becoming more and more important since negative effects of climate change are increasing. It is a relatively new trend that climate adaptation and public space are connected to each other. Before, it was only taken into consideration if the municipality wanted it and if it was financially possible. However, currently it is often necessary to implement climate adaptation measures to successfully develop an area (Interviewee 2, personal communication, August 23 2024).

Investments

A tricky thing about land value capture is that investments in climate adaptation could be only partially taking place in the area that is being developed. These investments could also be taking place somewhere else in the municipality (Interviewee 1, personal communication, August 22 2024).

A developer would prefer to contribute to public goals that also benefit the developer themselves. An example of this could be that the houses that they build can be sold for higher prices (Interviewee 1, personal communication, August 22 2024). Lower living costs – when a house is built energy neutral – can also be a trigger for buyers to pay more for the purchase of the house. When developers are able to ask higher prices for investments in sustainability that they do, this can be a reason that the developers will account more for sustainability and climate adaptation. However, this requires future home owners to pay more (Interviewee 7, personal communication, September 12 2024). We can also question whether this is desirable since there already is a housing crisis, because of which housing prices are already rising. If housing prices can increase due to investments in climate adaptation, affordable housing might be even more difficult (Interviewee 8, personal communication, September 13 2024).

Awareness

In chapter 1.1 I introduced the idea of Hartmann & Spit (2014) where they mention three phases for capacity building. These phases are awareness, recognition, and urgency. Overall, we can see that actors are aware of (benefits of) climate adaptation. All interviewees (interviewees 3-7 and 9-11) who have been asked interview question 19 (i.e., *Are the different actors aware that climate adaptation is of importance (for spatial planning, cities, etc.) in the Netherlands?*) mentioned that the municipality is aware of (benefits of) climate adaptation. For developers, these interviewees did think that they had some awareness as well, but turning this awareness into action is much more limited.

This awareness is important since a problem can only be addressed when the actors that are involved actually recognise the problem. It is mainly the municipality that is aware and is also willing to voice this awareness and act upon it (Interviewee 4, personal communication, September 2 2024; Interviewee 10, personal communication, September 16 2024). Municipalities generally have policies and visions regarding sustainability. Housing corporations are establishing such policies more and more as well (Interviewee 4, personal communication, September 2 2024). For developers, it varies more.

For developers, it is much more determined by the necessity as well. When it is mandatory to do so, they will be aware of it. However, it varies between developers whether they are aware of (benefits of) climate adaptation (Interviewee 5, personal communication, September 5 2024). With municipalities asking more for climate adaptation measures, it is becoming more normalised for developers to include it. Because of that it might be more of a standard that certain measures are taken, which might make developers more aware of it as well (Interviewee 11, personal communication, September 27 2024). Interviewee 11 also mentioned the influence that tenders might have on a developer's awareness. Developers have to show their ambitions for those tenders. When they are also able to score points for sustainability/climate adaptation, this can be a motivation to apply it.

Furthermore, a developer that is working on inner city developments might be more inclined to address climate change than a developer that is working on business areas. The location of the project can thus be quite determining in the awareness that the developer holds. When the connection between the location and climate adaptation is strong, the developer will be aware of the necessity (Interviewee 3b, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024).

Some developers really advocate for climate adaptation and sustainability, giving them a positive reputation regarding this topic. Interviewee 5 mentioned that this a positive development (developers also advocating for climate adaptation and not only having it be required by the municipality). Accounting for climate adaptation and sustainability can thus be a marketing product for a developer as well (Interviewee 6, personal communication, September 6 2024).

However, for developers it is also much more a financial puzzle that needs to be feasible (Interviewee 6, personal communication, September 6 2024). When climate adaptation does not immediately cause a value/profit increase, developers might only do it when they are obliged to do so (Interviewee 3a, personal communication, August 29 2024). Developers might find it important to include climate adaptation, but they might also feel like it is the responsibility of the municipality to account for climate adaptation in public space. Regarding building sustainably, this might be different (Interviewee 10, personal communication, September 16 2024).

Overall, the bar for climate adaptation measures might also be raised higher than is legally required (Interviewee 9, personal communication, September 13 2024). Building regulations are the minimum. Interviewee 8 mentioned that the province (province of Utrecht) that his municipality is in, has

additional requirements (*Ambitie Goud*). However, interviewee 8 mentioned that he sometimes doubts whether it was a smart choice to sign this ambition since it does force them to impose demands on developers etc. These additional requirements ask for more investments, making it more expensive to build. This might then lead to less houses being build or it costing more time. And since there is a housing crisis, this might not be the best move (Interviewee 8, personal communication, September 13 2024). Furthermore, transparency in the land value capture negotiations could help as well. It is nice for market parties to know what they can expect regarding certain demands that they are required to fulfil. In chapter 2.2.1 on land value capture I have introduced several land value capture instruments. An example of this are developer obligations. A distinction between negotiable developer obligations (NDO's) and non-negotiable developer obligations (N-NDO's) can be made. "NDOs are only vaguely regulated in regional/national legislation" (Muñoz Gielen & Lenferink, 2018, p. 772), whereas "N-NDOs have a statutory character, i.e. they are prescribed in national/regional legislation, and/or in legally binding local policy and can, in theory, thus be prescribed without negotiation" (Muñoz Gielen & Lenferink, 2018, p. 771). The findings above show that developers appreciate transparency and knowing what to expect (regarding requirements that they need to meet). Therefore, N-NDO's might be preferable.

Consistent and clear government policy thus benefits everyone that is involved (Interviewee 3a, personal communication, August 29 2024). Right now, there are differences between municipalities in what requirements they have regarding climate adaptation. This is due to differences in the additional requirements that they all formulate. Different municipalities have different ambitions regarding climate adaptation, for example because of political preferences. This could also mean that there are differences between municipalities in the land value capture rationale that they support (i.e., 1. cost equivalency, 2. externality mitigation, and 3. skimming of the development gains (Kresse et al., 2020)).

This differentiation between municipalities regarding climate adaptation requirements might make it more difficult for developers to know what to expect (Interviewee 9, personal communication, September 13 2024). However, there is also differentiation regarding what climate adaptation measures are needed for each municipality. It is therefore not fully possible to make it very concrete – not on a national level at least, it is possible on a municipal level (Interviewee 11, personal communication, September 27 2024).

According to Interviewee 5 (personal communication, September 5 2024) it is not yet sufficiently testable what the results/effects of climate adaptation are. It should be more normative what values are preferred. Think about the thickness of isolation or how much energy buildings use. These values could then be noted in the building regulations, making it new and standard policy.

4.3.3 Actors' ideals

In this chapter 4.3.3, I will answer the second complementary research question (i.e., *how are the actors' ideals aligned? Do they all support climate adaptation*?). In the previous chapter 4.3.2 I focused on actors' awareness regarding climate adaptation. In this chapter, I will expand this information by looking at next two phases that Hartmann & Spit (2014) introduced: recognition and urgency.

Recognition

Recognition is important because it allows actors to see what the problem really entails and what factors of the problem need to be addressed most. Overall, we can see that the general ideal of the actors – a municipality and a developer – line up. Both actors want to contribute to 'good' spatial planning (Interviewee 6, personal communication, September 6 2024).

On a national level, there is the policy "Water en bodem sturend". This policy was mentioned by several interviewees. On a basic level, *Water en Bodem Sturend* can be 'equal' to climate adaptation. Because projects need to meet the standards of *Water en Bodem Sturend*, these projects then often implement some kind of sustainability and climate adaptation measures. Also due to policies like that, climate adaptation is becoming more and more important. Next to that, the location of a project can be very influencing in actors' recognition of the importance of climate adaptation measures (Interviewee 1, personal communication, August 22 2024).

The fact that climate adaptation is becoming more important, helps in advocating for investments in climate adaptation. When it is more important, there is thus a bigger necessity for it. This can then lead to more awareness regarding the topic, and even creating more awareness for closing the financing gap and alternative methods of financing climate adaptation. Furthermore, it could also have an influence on the negotiations; where it might then be easier to make requirements regarding climate adaptation.

Profits

As mentioned before, the financial aspect is of more importance for the motivation of the developer than for the municipality. Regarding climate adaptation, I have discussed in the previous chapter 4.3.2 that municipalities generally are aware of benefits of climate adaptation, whereas for developers this awareness also depends on whether it is necessary, i.e. mandatory by regulations or because it is needed for the safety of that area (flood prevention, for example). When they are aware that it is necessary for that specific area, they will also recognise the benefits of climate adaptation. Developers are looking for profits. This means that they will not do something when there is nothing in it for them. Regarding climate adaptation, they will most likely only include it when it is either mandatory for them to do so, or when they are able to make money off the climate adaptation measures. (Interviewee 6, personal communication, September 6 2024; Interviewee 7, personal communication, September 12 2024; Interviewee 8, personal communication, September 13 2024; Interviewee 10, personal communication, September 16 2024). Municipalities, however, are less 'dependent' on profits. Whenever the project is important enough, municipalities might be willing to make a loss on a project simply because they believe that the project is important enough (Interviewee 6, personal communication, September 6 2024).

A developer would most likely be more willing to invest in climate adaptation measures when these measures are less expensive to install. So any financial benefits would have to take place at the construction of a development before a developer would install these climate adaptation measures. However, currently this is not the case. So, developing an area in a climate adaptive way is still more expensive than making that area not climate adaptive. Often, this also leads to the choice to go for the non-climate adaptive measure (Interviewee 10, September 16 2024).

Political choices

In recognising the problem of climate change and thus the need for climate adaptation, political choices can play an important role as well. The opinion of the local government regarding climate adaptation can be determining in the way that it is addressed and valued by that same municipality (Interviewee 1, personal communication, August 22 2024). There also is some scepticism about how issues regarding climate adaptation should be addressed. This is similar to national politics. These are issues that also need to be dealt with (Interviewee 5, personal communication, September 5 2024). Next to that, political sensitivity can play an important role here as well. It is about how sensitive the subject is, but also about what the followers of involved politicians think about climate adaptation. So for municipalities, politics can play a quite influential role as well (Interviewee 4, personal

communication, September 2 2024). Finally, policy stability is also an important factor to take into account. Here, it is the question whether the need for climate investments is a temporary trend, or something that will last and thus become a new reality. Changes in politicians can thus perhaps have a negative effect on the awareness of the issues of climate adaptation.

In the interviewees, all interviewees mentioned that climate adaptation is an issue that is becoming more urgent. Therefore, a new reality where climate adaptation plays a bigger role is already developing. But, this does not mean that policy choices and standpoints do not have an influence on this development. On the municipal level, policy choices can influence the attention that climate adaptation gets.

Urgency

Urgency is important because it is only then that a strategy can be formulated with which the problem can be tackled best. Overall, all interviewees mentioned that climate adaptation is becoming more urgent in spatial planning (Interviewee 2, personal communication, August 23 2024; Interviewee 3a, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024; Interviewee 5, personal communication, September 5 2024; Interviewee 11, personal communication, September 27 2024). Interviewee 6 (personal communication, September 6 2024) mentioned that there is more and more emphasis on climate adaptation and sustainability. He expects this development to continue and that building climate adaptive housing – and circularity – will become the standard. It is important to note the level of urgency varies per actor or location.

For municipalities, climate adaptation is generally an urgent problem (Interviewee 7, personal communication, September 12 2024; Interviewee 10, personal communication, September 16 2024). However, the level of urgency would also be dependent on political choices; some political parties feel more urgency regarding climate change than others.

For developers or other private parties, the level of urgency is usually lower. The costs of climate adaptation play a big role in this, as I have discussed before as well. However, this does not mean that there are no developers that believe that climate adaptation is an urgent issue. There are developers who really advocate for sustainability and climate adaptation (Interviewee 7, personal communication, September 12 2024).

We can thus see that public parties generally believe that climate adaptation is an urgent problem, whereas that sense of urgency is still developing for private parties such as developers (Interviewee 4, personal communication, September 2 2024).

The location of a project can have an influence on actors' sense of urgency regarding climate adaptation as well. When it is necessary to implement climate adaptation measures, e.g. because the area would otherwise be in danger of flooding, it is clear for all actors what the urgency behind climate adaptation is. However, when an area is in danger of heat stress, this is something that is less visible to the eye and therefore often less urgency is seen (Interviewee 3b, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024).

4.3.4 Future

In this chapter 4.3.4, I will answer the third and fourth complementary research question (i.e., *what changes in behaviour/thinking need to be made*? And *what role can land value capture play in financing climate adaptation measures?*).

Changes in behaviour

I have asked the interviewees about what they think are the biggest challenges regarding climate adaptation. There are several aspects that they mentioned. First of all, it can be difficult for all actors involved in a planning project to agree on the concrete plans. It is easier to agree on broad visions or ideas, but the translation of these ideas into concrete plans can be much more tricky (Interviewee 5, personal communication, September 5 2024). Second, grid congestion is becoming a bigger problem in the Netherlands (Interviewee 8, personal communication, September 13 2024; Interviewee 10, personal communication, September 16 2024). Third, affordability: sustainability and climate adaptation is still more expensive than 'traditional' ways. When people can afford it, they are most likely more than willing to 'become' sustainable (Interviewee 8, personal communication, September 13 2024). It is therefore important that sustainable measures keep developing so that it will become more affordable. Fourth, climate adaptation takes up space, and this space is not always available (Interviewee 10, personal communication, September 16 2024). Often there are several public goals that need to be addressed and this may be at the expense of proper climate adaptation measures. Finally, you cannot become a climate adaptive city when you only address public space. There are not yet demands for existing buildings, but because of that it is difficult to create a fully climate adaptive city (Interviewee 11, personal communication, September 27 2024).

Climate adaptation could create benefits for maintenance costs (Interviewee 6, personal communication, September 6 2024). For developers this is interesting when they do not sell the houses that they build, but when they use them as an investment instead. In this case, when the developer stays owner of the property, it can be attractive for them to invest in climate adaptation so that the maintenance costs stay low.

If you want climate adaptation to be more attractive, something will have to change. This can either be that the costs of climate adaptation measures decrease, or it can be that the negative effects of not implementing climate adaptation measures will increase.

An example of a measure to increase attractiveness of climate adaptation measures is a *climate label* (Interviewee 3b, personal communication, August 29 2024). Through this label, houses or areas could score points regarding the climate adaptiveness. Buyers are then able to see just how climate adaptive that area is, helping them in assigning value to that area. However, because there are quite some areas that are not yet climate adaptive, introducing a climate label is not very popular since it might mean that the values of certain areas might then decrease.

Demands for climate adaptation

Most projects are built according to demands on the market. If there is no need for two-persons apartments, they will not be built as much. The question then is whether demands for sustainability and climate adaptation from future users of houses, offices, etc. that are being built, will influence the supply side.

When future users of the properties that are being built, 'demand' climate adaptation, it is more attractive for developers to indeed include climate adaptation there (Interviewee 2, personal communication, August 23 2024 Interviewee 6, personal communication, September 6 2024; Interviewee 7, personal communication, September 12 2024; Interviewee 11, personal communication, September 27 2024). This would then also mean that these future users are willing to pay for climate adaptation. For example, climate adaptive houses would then be more expensive but because the future users appreciate this they are willing to indeed pay more for a house that is climate adaptive. Interviewee 6 (personal communication, September 6 2024) does note, however, that it is most likely the higher end segment of the housing market that is willing – and more importantly, able – to pay more for these climate adaptive houses. Nevertheless, this is not the most ideal way to finance

climate adaptation. As mentioned before, land value capture can be a useful tool to finance climate adaptation measures, where increases in land value could pay for climate adaptation investments. These measures would then be able to benefit all, and not just the people in the higher end segments of the housing market who can pay for climate adaptation and sustainability measures themselves.

Now that the demand side regarding climate adaptation is slowly changing, it is getting easier to invest in climate adaptation since risks are decreasing (Interviewee 2, personal communication, August 23 2024). However, it is important that because of these demands, there are indeed bigger profits or less costs for the developer at the sale of the properties that they have developed (Interviewee 11, personal communication, September 27 2024).

Another thing that some interviewees mentioned as a possible motivation for climate adaptation is subsidies. With more subsidies, the market would probably respond. So subsidies for climate adaptation would then most likely stimulate more investments in climate adaptation measures (Interviewee 9, personal communication, September 13 2024). In the light of this research, I will not expand more on the topic of subsidies regarding climate adaptation and will instead keep focussing on the possibilities of land value capture to finance climate adaptation measures.

Thus, when the financial incentive to invest in climate adaptation measures is bigger, it is more likely that investments in climate adaptation will be done (Interviewee 8, personal communication, September 13 2024). Furthermore, extreme circumstances can create an extra impulse to invest in climate adaptation (Interviewee 11, personal communication, September 27 2024).

Land value capture

Next, I address the role that land value capture can play in financing climate adaptation measures. Climate adaptation is one of the multiple public goals that are addressed through land value capture. This means that there is a competition of climate adaptation and other public goals. (Interviewee 1, personal communication, August 22 2024). Here, you can once again see the importance of political choices and preferences.

As mentioned before, currently, costs for infrastructure are often included in land value capture, but costs for climate adaptation could perhaps also be included. Municipalities can capture costs that they need to make to prepare the public space for the development from developers that are working on that project (Interviewee 10, personal communication, September 16 2024). Where this previously used to be costs for infrastructure, costs for other things are now included more, such as costs for climate adaptation. In the municipality of Interviewee 10, there is now a standard percentage for costs for climate adaptation. The contributions of developers are now 20% higher, and this 20% increase is used by the municipality to make that area climate adaptive. Here, we can thus see the cost equivalency rationale that I introduced in chapter 2.2.1 on land value capture. This rationale focuses on a contribution in exchange for investments in public space. This is thus something different from the third rationale that I introduced (i.e., skimming of the development gains) where part of the value increase of land is captured by the government body.

Even if developers might not be very much in favour of climate adaptation measures in land value capture, it is possible for municipalities to include it (Interviewee 1, personal communication, August 22 2024). In this way it is mandatory for developers to contribute to climate adaptation measures.

It is not the case that the municipality can capture the costs of climate adaptation because climate adaptation might prevent higher costs in the future. Land value capture is about the costs that have to be made right now (Interviewee 10, personal communication, September 16 2024). Furthermore, it is

also important that there are some costs that you can capture (Interviewee 7, personal communication, September 12 2024). Right now, this is not yet always the case. So when there are no costs of climate adaptation to capture, it is difficult to arrange this only via land value capture. Financing climate adaptation via land value capture might be easier for developments in non-urban areas since construction costs are usually lower there. And the question then is whether that is a sustainable choice or whether it is more sustainable to develop in existing urban areas where it is easier to provide good mobility options through public transport for example. But it is not easy to do that via land value capture (Interviewee 7, personal communication, September 12 2024).

If you do want to include climate adaptation in land value capture, it is important that current problems are addressed. The biggest problem regarding climate adaptation that the interviewees saw was the finances of climate adaptation measures. When climate adaptation is cheaper in the construction phase, developers will most likely construct climate adaptive buildings and neighbourhoods (Interviewee 10, personal communication, September 16 2024). Next to that, it is also more attractive to invest in climate adaptation when a property increases in value due to climate adaptation measures that have been taken (Interviewee 10, personal communication, September 16 2024).

Perhaps a divide between climate adaptation and climate security could be made. We should not let climate security depend on land value capture (Interviewee 1, personal communication, August 22 2024). So things like dike reinforcement should be taken care of by the government. In this way there is security that it will indeed be financed. Thus, right now climate security is a task for the government institutions. When dikes need to be reinforced due to a development that is going on, it might make more sense to ask for a contribution from that developer (Interviewee 5, personal communication, September 5 2024).

Climate adaptation is often seen as “nice to have” instead of “need to have” (Interviewee 3a, personal communication, August 29 2024). Whereas climate security is a necessity. However, interviewee 2 (personal communication, August 23 2024) mentioned that climate security is becoming more and more important. Take water security for example, this is something that is getting more attention since risks for flooding are getting bigger. Interviewee 11 (personal communication, September 27 2024) mentioned that municipalities are generally more aware of what to do to tackle risks regarding flooding than things like heat stress since heat stress is a rather ‘new’ problem.

Now that I have answered the four complementary research questions to the third sub research question, I will now answer the third sub research question (i.e., *how can land value capture (and the negotiations) be optimised in order to make it more efficient in accounting for climate adaptation?*).

I want to start by referring to the challenges regarding climate adaptation that I mentioned at the start of this sub chapter 4.3.4. Challenges regarding climate adaptation are unanimity, grid congestion, affordability, space, and rules for existing buildings. These challenges need to be addressed in order to optimise climate adaptation measures.

We can thus say that it needs to be more attractive to implement climate adaptation measures. The finances regarding climate adaptation are not yet very attractive. Overall, climate adaptive measures are more expensive than traditional ways, making it that developers often choose for the way that is financially the most advantageous for them.

Another way in which climate adaptation might be more attractive to invest in, is when the problems when you do not invest in climate adaptation increase. The necessity of climate adaptation measures then increases, which will most likely cause further developments on this topic as well.

Next to that, when there are more demands for climate adaptation – whether that is because climate adaptation is a bigger necessity or because the ideals of future users of developments focus more on climate adaptation and sustainability – this might make it more attractive to invest in climate adaptation as well. However, these demands currently mostly take place in the higher end segment. It is therefore crucial to study the potential of land value capture in financing climate adaptation measures. Via this way, these measures could be accounted for through cross financing.

TABLE 5 OVERVIEW OF THE FINDINGS

Actors	
Who takes part in the negotiations	Municipality and developer; occasionally housing corporation or landowner. The municipality is usually the first actor to make demands regarding the realisation of the project. There are other actors who do not take part in the negotiations, but who do have interests in the negotiations (e.g., province or future residents/owners).
Relevant policies	
There are four different policies that were mentioned the most by the interviewees. These policies have to be taken into account in developments.	- Besluit bouwwerken leefomgeving - Water en bodem sturend - Wet voorkeursrecht gemeenten - Zelfrealisatierecht
Knowledge/expertise	
Not many expertise differences	Expertise differences between different actors, developer and municipality, were not really acknowledged by the interviewees. The interviewees who acknowledge expertise differences, mainly saw these differences between smaller and bigger municipalities. Smaller municipalities have the same responsibilities as bigger municipalities, but they often have less employees to face all these responsibilities
Expertise differences were seen within organisations	Internally in the municipalities themselves, knowledge and expertise levels can differ as well. This means that people all working for the same municipality might have a lot of knowledge of their own policy domain, but the knowledge that they have of other policy domains might differ.
Power relations	
Dependency on each other	There is not one actor that is always the most powerful due to the dependency of all actors on each other.
Could be influenced by	Landownership
Current situation	
Awareness	All actors aware However, for developer also determined by necessity (mandatory or location).

What could help raise awareness	Transparency Consistent and clear government policy
Actors' ideals	
Recognition	All actor recognise. However, municipality more willing to act upon it. Political choices
Urgency	Higher for municipalities than for developers.
Future	
What would help	Changes in behaviour Demands for climate adaptation
Climate adaptation and land value capture	Costs for infrastructure are often included in land value capture, but costs for climate adaptation could also be included. Financing climate adaptation via land value capture might be easier for developments in non-urban areas since construction costs are usually lower there.

5. Discussion

This chapter discusses some findings of the previous chapter. To do this, first I want to look at the research methodology and theoretical framework that I have used. As introduced in chapter 3, I have combined both desk research (scientific papers and policy documents) and a primary data collection (semi-structured interviews) as the research methodology. For the data collection I have focused on three things: 1) content-analysis (policy documents), 2) meta-analysis (previously conducted research), and 3) semi-structured interviews. I have gathered most of the information through the interviews. For these interviews I created an interview guide (which can be found in Appendices A and B) that was used as a guideline for all of the interviews. This means that there are some differences between the interviews in which questions were asked more thoroughly. For the analysis of the interviews, I have first transcribed all interviews, after which I coded them. The corresponding codebook can be found in Appendix C. I divided these codes in four groups; three separate code groups that all correspond to one of the three sub research questions, and a code group with other information, which mainly referred to specific information about the interviewee. In further analysing the interviews, I analysed the separate code groups one by one where all useful information of each code was written down in the corresponding chapter.

In chapter 2.3 I operationalised the theoretical framework of this research which can also be seen in Table 6 below. As can be found in the operationalisation, I have divided the research accordingly to the four domains of Arts et al. (2006). Using this operationalisation, I will now discuss the findings of this research.

TABLE 6 OPERATIONALISATION OF THE FOUR DIMENSIONS

Dimension	Indicators
Actors	Actors themselves: who is allowed to participate in the negotiations Interactions between actors
Resources	Resources of the actors: knowledge or expertise that the actors hold Power relations between the actors Influence of political choices/preferences
Rules of the game	Formal rules: what land value capture in the Netherlands is used for and what the negotiations (should) look like
Discourse	Policy: on climate adaptation and sustainability Habits/norms: what the actors' ideals of climate adaptation look like

Actors

There are only a few actors that can participate in a land value capture negotiation. These are the municipality, developer, and occasionally landowner or housing corporation. A municipality and developer are always part of the negotiation process. A housing corporation could be taking part when they are acting as developer of a certain project. The initiator of a project can be both the municipality or the developer (Interviewee 8, personal communication, September 13 2024), but the municipality is usually the actor that sets the first demands regarding the project (Interviewee 10, personal communication, September 16 2024).

Other actors that might be able to influence spatial planning projects, are actors that have interests in the project. In chapter 4.1 I elaborated on an example given by interviewee 1 (personal communication, August 22 2024), where both *Rijkswaterstaat* and *Hoogheemraadschap* appealed to a project. This example shows that both of these parties can still have some sort of influence on a

project through the appeals that they can make. Next to these two parties, future residents or owners of a project are also actors that are not allowed to join the negotiations, but that do have interests in the project. Furthermore, policies that have been drawn up by provinces or water boards have a higher ranking than municipal policies, meaning that projects always have to comply with these policies of provinces and water boards.

Resources

For this second domain, I have first looked at the knowledge or expertise that the actors hold. As I have described in chapter 4.2.1, there are not really any expertise differences to be seen between the different actors; e.g., between a municipality and a developer. However, some interviewees did mention some expertise differences between smaller and bigger municipalities, where smaller municipalities are more quickly inclined to look for expertise in external consultancy companies (Interviewee 5, personal communication, September 5 2024; Interviewee 9, personal communication, September 13 2024). Furthermore, expertise differences could also be found within organisations, where one department does not have the expertise/knowledge that people from another department have (Interviewee 3b, personal communication, August 29 2024).

The second aspect that I have studied is that of the power relations between the actors in a negotiation. An actor's influence in the negotiations is dependent on the power that they have in the negotiations. I focus on three actors, i.e. the municipality, developer and landowner. The dependency of all actors on each other is important to keep in mind. This dependency means that they are not really able to set an ultimatum.

Municipalities are dependent on landowners and developers to execute projects. When a municipality is landowner of the plot of land that is to be developed, their dependency on the developer is lower than when the municipality is not landowner and instead the developer is the landowner.

When the developer is the landowner, the developer is still dependent on the municipality for approval of the development. Therefore they often have to make some compromises with the municipality so that they can still develop and make a profit.

A landowner's power is created by the *zelfrealisatierecht* (Interviewee 2, personal communication, August 23 2024; Interviewee 9, personal communication, September 13 2024). Because of that right a landowner's land cannot just be taken by the municipality. This forces the municipality to cooperate with the landowner. You can thus say that a landowner has quite some power, due to *zelfrealisatierecht* (Interviewee 9, personal communication, September 13 2024). When a developer owns a certain plot of land, the developer can appeal to the *zelfrealisatierecht* because he is able and willing to develop that land.

In general, municipalities show more awareness, recognition and urgency towards climate adaptation (which I have studied in chapters 4.3.2 and 4.3.3). Because of this, it might be easier to implement climate adaptation more when municipalities are indeed able to encourage and implement climate adaptation measures. A stronger and more powerful negotiation position for the municipality would then be preferred. Nonetheless, having certain powers in the negotiation process might not be the only important thing here. The will to execute certain ideas or polices could play a big role as well.

Nevertheless, since actors are dependent on one another, there is not one actor in the negotiations that is always the most powerful. It is thus inevitable that actors have to make compromises, meaning that municipalities might have to cut back on their requirements regarding climate adaptation.

Furthermore, landownership is thus an important factor to take into consideration here since landownership can change the dynamics a bit.

Finally, political choices or preferences are important to keep in mind as well. The standpoints of local governments regarding climate adaptation can be different between municipalities and can also cause differences in the way that climate adaptation is or is not addressed (Interviewee 1, personal communication, August 22 2024). Here, policy stability is an important factor since the question of whether or not political calls for climate adaptation are a temporary trend, can influence the trust and willingness of other actors such as developers to listen to and act upon these calls.

Rules of the game

The first thing I want to note here is something that Interviewee 2 (personal communication, August 23 2024) mentioned. He described how 'the system' allows for increases in land prices. This is something important to keep in mind since higher land prices often lead to less investments that can be made in a project. A lot of interviewees mentioned that affordability regarding climate adaptation is a big factor in whether or not climate adaptation measures are invested in.

For developers it is important to own land since it strengthens their negotiation position. Furthermore, due to the Didam-arrest, government bodies are required to offer the land they want to sell to multiple parties. This often means that developers have to compete for that land. This competition can cause the price to increase since developers might then offer more money for that land in order to be certain that they can buy it. This system can thus cause land prices to increase. A developers' drive to buy land will most likely only grow. Because of this, there are now proposals for a *planbatenheffing*. This policy (based on passive land policy) would tax the value increase of a property that is only caused by a change in the land-use destination of that plot of land. This policy might make it unattractive to buy land "just in case" since it is then more expensive to own land and not develop it (Interviewee 2, personal communication, August 23 2024). For this policy, the rationale is that a value increase solely based on a change in land-use is not "fair" and should not belong to the landowner, but to the public. However, there are also some critiques on this policy where they say that the policy might be counterproductive and actually slow down constructions and developments.

The second thing I want to note is the difference between ambitions for climate adaptation and actual requirements for this topic. Municipalities create ambitions where climate adaptation is often posited as critical focus point. However, it is just as relevant that these ambitions are turned into requirements and thus actual action. The translation between ambitions and requirements thus needs to be as specific and corresponding as possible. In this way, consistent policy is created.

Consistency is also an important factor in the third thing I want to discuss, which is the difference between NDO's and N-NDO's as I have discussed this in chapter 4.3.2. As has been discussed there, developers – but other actors as well – are benefiting from consistent policy. This is because they then know what to expect (and what is expected from them). Furthermore, transparency in what is expected from could help as well, since expectations and requirements in negotiations are then more clear. All of this would point to N-NDO's being preferable since they give less room for discussion.

Discourse

For this final domain, I first looked at the actors' ideals regarding climate change. As I have introduced before, I use the three stages of awareness, recognition and urgency as introduced by (Hartmann & Spit, 2014) to study the actors' ideals regarding climate adaptation.

Currently, it is often necessary to implement climate adaptation measures to ensure a successful development of an area. It is then important that the actors that are involved are indeed aware of this importance of climate adaptation. If this awareness is not present, it is much harder to address and even recognise the problem. In general, it is mainly the municipality that is aware of the benefits of climate adaptation measures (Interviewee 4, personal communication, September 2 2024; Interviewee 10, personal communication, September 16 2024). They are also willing to act upon this which can also be seen in policies or visions that municipalities set up. For developers, their awareness regarding climate adaptation measures varies more (Interviewee 5, personal communication, September 5 2024). With more municipalities asking for climate adaptation it is becoming more normalised, which makes developers more aware of it as well. However, developers' awareness regarding climate adaptation can also be determined by the necessity. When it is mandatory to do so, they will be aware of it. Furthermore, developers working on inner city developments might be more aware of benefits of climate adaptation than developers working on business areas. When the connection between the location and climate adaptation is strong, the developer will be aware of the necessity (Interviewee 3b, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024).

Overall, the general ideals of the actors line up. All actors want to contribute to good spatial planning. However, for developers the financial aspect of spatial planning is of more importance than it is for municipalities. When it is not financially attractive for the developer to implement climate adaptation, he will most likely indeed not implement it. This is different for municipalities since they might be able and willing to take a loss on a project when they feel like that it is of great importance to them that the project is executed (Interviewee 6, personal communication, September 6 2024).

Developers will most likely only include climate adaptation when it is either mandatory for them to do so, or when they are able to make money off the climate adaptation measures (Interviewee 6, personal communication, September 6 2024; Interviewee 7, personal communication, September 12 2024; Interviewee 8, personal communication, September 13 2024; Interviewee 10, personal communication, September 16 2024). Municipalities generally believe that climate adaptation is an urgent problem, whereas that sense of urgency is still developing for developers (Interviewee 4, personal communication, September 2 2024).

If the awareness, recognition and urgency of actors regarding climate adaptation is higher, they will more easily be inclined to account for climate adaption in their projects. It is thus important that these three things are addressed. However, there are changes needed to stimulate this. This could either be that the costs of climate adaptation measures decrease, or that the negative effects of not implementing climate adaptation measures increase. Furthermore, demands for climate adaptation by future users and owners of developments can be a motivation to indeed implement these climate adaptation measures (Interviewee 2, personal communication, August 23 2024; Interviewee 6, personal communication, September 6 2024).

A second thing I want to discuss is the influence of location. Via the several interviews, it became clear that needs for climate adaptation can vary between different locations. Whenever a location asks for more climate adaptation measures in order for the area to be safe, it will be clearer for actors what the benefits of climate adaptation are. However, it can be questioned whether these areas where climate adaptation measures are necessary are actually the best places to develop. It might be cheaper and safer to develop elsewhere.

A third aspect that I want to mention here again is that all of the interviewees mentioned that it would be more interesting for actors to invest in climate adaptation, when there is more demand for it (for

example by future users or owners of the development). This could thus help in making actors aware of and recognise the benefits of climate adaptation measures. However, at the same time this is also something that should not be focussed on too much, since this is not the most ideal way to finance climate adaptation. This idea does relate to something else that was mentioned in most interviews as well, namely that the urgency regarding climate adaptation would be bigger when negative effects of not implementing climate adaptation measures would increase. Next to that, climate adaptation would be more attractive when it is cheaper to implement. The financing of climate adaptation is something that most interviewees saw as a big challenge, maybe even the biggest challenge, regarding climate adaptation.

The final point I want to address here is that financing climate adaptation through land value capture might be easier in non-urban areas since costs are usually lower there.

6. Conclusion

This research investigated ways in which climate adaptation might be accounted for through land value capture, as well as the role that relevant actors play in this. Based on an explorative research that was performed via desk research and semi-structured interviews, this research shows that there are indeed possibilities for climate adaptation to be financed through land value capture. However, there are some caveats to this as well.

Through the theoretical framework of Arts et al. (2006) that was used for this research, I was able to answer the main research question step by step. The main research question of this research was formulated as follows: *what do the land value capture negotiations look like to the participating actors and, to what extent can the negotiations be optimised in order to account for climate adaptation?*

To answer this question, I now first focus on the first part of the main research question (i.e. *what do the land value capture negotiations look like to the participating actors?*). In the land value capture negotiations, there are only a few actors that can participate. These actors are the municipality, developer, and occasionally landowner or housing corporation. Both the municipality and the developer are always involved in the negotiations. A housing corporation could be taking part when they are acting as developer of a certain project. The municipality is typically the actor who sets the first demands regarding the project, but the project initiator could also be a developer and not only a municipality.

Next to that, there are other actors who do not take part in the land value capture negotiations, but who do have interest in the project. In chapter 4.1 I elaborated on an example given by interviewee 1 (personal communication, August 22 2024), where both *Rijkswaterstaat* and *Hoogheemraadschap* appealed to a project. This shows that such actors can have an indirect influence on the negotiations. Another type of actor that also has interests in the project are the future residents or owners of a project.

There are not many expertise differences between the actors, i.e., municipality and developer. Overall, both actors are aware of requirements they need to meet. Any expertise differences that were seen by the interviewees, were seen between different municipalities or within municipalities themselves. Smaller municipalities were for example quicker in need of hiring expertise through an external consultancy company (Interviewee 5, personal communication, September 5 2024; Interviewee 9, personal communication, September 13 2024). Bigger municipalities do also use external consultancy companies, but then only for very specific knowledge whereas smaller municipalities would thus do this for 'broad' knowledge as well.

However, power differences between the actors can be present and can influence the negotiations. Since all actors in the negotiations are dependent on each other for actual execution of the project, there is not one actor that is always the most powerful. However, through the interviews it became clear that the actor who is also landowner generally has a slight advantage. So when the developer is the landowner, they might be able negotiate more about the requirements that the municipality sets since the municipality does want that plot of land to be developed. Although municipalities are generally already able to demand requirements for project and developments, this is even more easy for them when they are also the landowner since they are then not dependent on the willingness of the developer to develop that plot of land in the way that and at the moment that the municipality prefers.

Thus, since actors are dependent on one another, there is not one actor in the negotiations that holds the most power. It is then thus inevitable that actors occasionally have to make compromises, which

might mean that municipalities would have to cut back on their climate adaptation requirements. Furthermore, landownership is thus an important factor to take into consideration here since landownership can change the dynamics.

I now focus on the second part of the main research question (i.e. *to what extent can the negotiations be optimised in order to account for climate adaptation?*).

In this thesis I referred to the three phases of awareness, recognition and urgency as introduced by Hartmann & Spit (2014) several times. To be able to properly address the financing issue of climate adaptation, it is important that the actors who are involved are aware of the problem and recognise it, but also that they find it to be an urgent issue. A bigger understanding of the problem leads to greater feeling of responsibility and willingness to contribute to solutions for that problem. Through the interviews, it has become clear that in general the municipality shows more awareness, recognition and urgency towards climate adaptation. Nonetheless, developers are aware of the problem and do recognise the issue and importance of climate adaptation measures. However, this does not necessarily translate into a sense of urgency for the developers regarding investments in climate adaptation measures.

Developers' awareness of climate adaptation often depends on necessity. When it is mandatory to do so, they will be aware of it. Furthermore, developers working on inner city developments might be more aware of benefits of climate adaptation than developers working on business areas. When the connection between the location and climate adaptation is strong, the developer will be aware of the necessity (Interviewee 3b, personal communication, August 29 2024; Interviewee 4, personal communication, September 2 2024).

Developers are also more influenced by the financial aspect of climate adaptation measures since it is often still something that only costs them money and not something that is very profitable for them. In contrast, municipalities might occasionally be willing to take a financial loss on a project when they feel like the project is of great importance to them (Interviewee 6, personal communication, September 6 2024).

Ultimately, developers will most likely only include climate adaptation when it is either mandatory for them to do so, or when they are able to make money off the climate adaptation measures (Interviewee 6, personal communication, September 6 2024; Interviewee 7, personal communication, September 12 2024; Interviewee 8, personal communication, September 13 2024; Interviewee 10, personal communication, September 16 2024).

When actors have greater awareness, recognition, and a sense of urgency regarding climate adaptation, they are more likely to account for it in their projects. Therefore, addressing these three things is crucial. Certain changes are necessary however. This could either be that the costs of climate adaptation measures decrease, or that the negative effects of not implementing climate adaptation measures increase. Additionally, demands from future users and property owners can serve as a motivation to adopt climate adaptation measures in developments (Interviewee 2, personal communication, August 23 2024; Interviewee 6, personal communication, September 6 2024).

Throughout the interviews, interviewees mentioned that it is possible to address climate adaptation through land value capture. It is important to note that this only applies to measures that take place in public space. For climate adaptation measures that apply to buildings, these requirements are a part of the building regulations. Land value capture is currently used to finance mostly infrastructure costs of the municipality. However, it is thus also possible to finance climate adaptation measures that take place in public space through land value capture. In the municipality of Interviewee 10 (personal

communication, September 16 2024), there is now a standard percentage for costs for climate adaptation. The contributions of developers are now 20% higher, and this 20% increase is used by the municipality to make that area climate adaptive. Even if developers might not be very much in favour of climate adaptation measures in land value capture, it is thus possible for municipalities to include it (Interviewee 1, personal communication, August 22 2024). In this way it is mandatory for developers to contribute to climate adaptation measures. However, it is only possible to include climate adaptation measures that have a place in the public space, since measures that are connected to buildings, cannot be included in land value capture. They should instead be included in the building regulations.

To summarise, climate adaptation measures could indeed be accounted for through land value capture. This is easiest done in a non-urban area, where development costs are usually lower than for a development that is taking place in an urban area. Furthermore, it remains important that relevant actors show awareness, recognition and urgency around climate adaptation. Especially a bigger sense of urgency could help in actors actually wanting to invest in climate adaptation. Lastly, the costs regarding climate adaptation remain a big issue. It is therefore even more relevant to look for multiple ways of financing these measures (cross-financing), which is why it is even more relevant that financing climate adaptation through land value capture could be a successful possibility.

6.1 Critical reflection

This research took on an explorative approach, meaning that any results are empirical descriptions. Via the semi-structured interviews I was able to gather the needed data. However, this process did take some time. Finding enough interviewees and actually conducting the interviews was a process that took place over six weeks. There are also some limitations that relate to the selection of interviewees. First of all, possible personal preferences of interviewees regarding climate adaptation might show. The extent to which they address climate adaptation in their work can be determining as well. Some interviewees mentioned that climate adaptation is not something that they focus on a lot, but they were able to provide quite some information on this topic which makes me wonder to what extent it is their personal or professional preference. Furthermore, throughout the interviews it became clear that motivations regarding climate adaptation differ a lot for different locations. This is because the necessity for climate adaptation can greatly differ in these different places as well. It might have therefore be nice to focus on these different types of locations (big/small city, inner city developments/non-inner city developments, etc.).

The theoretical framework of this research was based on the Policy Arrangement Approach by Arts et al. (2006). This theory was not specifically suited for this research, which means that I have adjusted it slightly and applied the four domains to this research, making them the four central focus points of this research. However, it is not a theory that focuses on negotiation processes. This is also something that I have not included in my research, but the results of such a study of the negotiation process might be able enrich the findings of this research. For future research it might be nice to include another theory that focuses on these processes as well. Furthermore, this would then also give the researcher more clarity on these processes, especially when such a negotiation process is specifically studied. In this way, more clarity on what the land value capture negotiations look like to the participating actors could be obtained. Overall, I am content on the framework that I have chosen. I believe that the four domains were formulated in such a way that all relevant aspects to the main research question were indeed covered.

When I started writing my thesis, my expectation was that climate adaptation is not something that is high on everyone's agenda. Through my research, it became clear that this is definitely not always the

case. Some interviewees were quite enthusiastic about climate adaptation, where they really felt the need to emphasise the importance of climate adaptation measures. At the same time, there were also interviewees who were a bit laid-back about it. This difference was interesting to see, but it also was a slight challenge for me to then see where the general 'enthusiasm' about climate adaptation is located. In the end, I believe there was a rough 50/50 divide in interviewees who were more and interviewees who were less enthusiastic about climate adaptation. Furthermore, this kind of relates to the different standpoints that actors have regarding climate adaptation. Most do see the benefits of climate adaptation, but this does not yet always translate into action. Explanations for this that I have found in my thesis are the costs, awareness and willingness of actors, and location. However, there might be more explanations which is why I believe this would be interesting to explore more.

6.2 Further recommendations

Next to the critical reflections on this research in the previous chapter, there are some recommendations for further research that I want to make. First of all, to understand the results of this research better, a negotiation process could be studied more in-depth. As I have mentioned in chapter 6.1 an approach on studying negotiation processes could be selected to do this properly. It is then also possible to have a closer look at the negotiations positions of all of the actors in the negotiations. The findings of this research regarding the expertise and power differences between the actors could then be studied more closely and be expanded with the findings that would be found in such a research. Next to that, it would be possible to see what the difference in a negotiations process are when a developer does or does not advocate for climate adaptation. Most interviewees mentioned that there are differences between developers in the extent in which they advocate and vouch for climate adaptation measures. However, I was not able to study the way this reflects in the negotiations. I do believe that this could be an interesting point, which is why I think that in future research this would be relevant to study.

Second, in chapter 4.3.3 I mentioned that Interviewee 6 (personal communication, September 6 2024) mentioned that municipalities might be willing to make a loss on a project, for example if they find the project too important not to be executed. However, if this is something that developers know as well, these developers might rely on this. This is something that I am not able to make any conclusions about through my own interviews and would need to be researched more.

Third, I think it might be nice to do a case study comparison. In the findings of the research I have mentioned that the location of a development can be influential on the need for climate adaptation. Insights in whether these differences between actors' awareness regarding climate adaptation for such a location or a location where climate adaptation is not needed as much might then be insightful.

Finally, another point that might be interesting to study more, is when awareness, recognition and urgency regarding climate adaptation turn into actions. In this research I have seen that there is some awareness and recognition, but this does not always result in a sense of urgency. It is then also this sense of urgency that is not always acted upon. I believe that a study which focuses on these relations would enrich the findings of this research.

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Appendix A Dutch interview guide

Introductie

Bedankt dat u tijd wil maken voor dit interview.

Dit interview houd ik voor mijn masterscriptie. In mijn scriptie kijk ik naar verschillende aspecten. Voornamelijk focus ik mij op het kostenverhaal en de bijbehorende onderhandelingen – waarbij ik benieuwd ben naar de instelling/houding van de verschillende betrokken actoren. Verder ben ik ook benieuwd naar de plek die klimaatadaptatie heeft en/of kan krijgen in het kostenverhaal.

1. Vindt u het oké als ik dit interview opneem zodat ik het later aan de hand van de opname kan uitwerken? De opname is alleen toegankelijk voor mij en mijn begeleider.
2. Heeft u nog vragen?

Introducerende vragen

3. Kunt u zichzelf kort voorstellen (naam, functie en het bedrijf waar u werkzaam bent)?
4. Wat doet u in uw werk m.b.t. het kostenverhaal? (of wat heeft u gedaan?)

Onderhandelingen

Deze eerste groep vragen gaat over de onderhandelingen in het kostenverhaal. Ik ben benieuwd naar de verschillende rollen van de betrokken actoren en hun belangen. Denk hierbij ook aan de prioriteiten van de actoren (in hoeverre verschillen deze van elkaar) of de kennis/expertise die de actoren bezitten (hebben zij “genoeg” expertise om de onderhandelingen een succes te maken).

5. Hoe zien de onderhandelingen zelf eruit? Is deze strikt vastgelegd in wet- en regelgeving? *Of zijn er juist (grote/kleine) verschillen tussen hoe onderhandelingen eruit zien of worden uitgevoerd?*
6. Wat zou uw rol zijn in de onderhandelingen?
7. Welke invloed heeft u? *Macht, kennis, expertise?*

<u>De actoren zelf</u>

8. Welke actoren mogen meedoen aan de onderhandelingen?
9. Hoe zitten de onderhandelingen in elkaar? Wie stelt de eerste eisen voor? Is dat de initiatiefnemer?
    a. Is dit dus anders wanneer de gemeente het initiatief neemt in verhouding met wanneer een ontwikkelaar dit doet?
10. Zie je door de tijd heen veranderingen in de onderhandelingen?
    a. Is er verschil in wat de lokale overheden nu als eisen stellen en wat ze bijvoorbeeld 10 jaar geleden aan eisen stelden?
11. Zie je veel verschillen tussen de overheden (groot/klein, provincie/gemeente) bij de onderhandelingen?
    a. Als ja, wat zijn deze verschillen?
    b. Als ja, wat is de oorzaak van deze verschillen?
    c. Als nee, hoe kan het dat zij gelijk zijn?

<u>Relaties tussen actoren</u>

12. Hoe zou u de relaties tussen actoren typeren?

    a. Wie heeft er meer macht in zo'n onderhandeling (of: een sterkere onderhandelingspositie)?
    b. Waardoor komt dat? (kennis/expertise, grondbezit, etc.)
    c. Wat voor gevolgen zou dit kunnen hebben?
13. Zijn de "doelen"/ideeën van de actoren (over de planvorming) gelijkwaardig? Of zie je dat bepaalde actoren ergens doorgaans (veel) meer waarde aan hechten dan andere actoren?
    a. Wat voor dingen verschillen de actoren dan in?
14. Zou u de onderhandelingen als effectief bestempelen? Waarom wel/niet? Waarin wel/niet?
    a. → effectief in het verhalen van kosten
    b. voor wie wel/niet?

Klimaatadaptatie

De volgende groep vragen gaat over klimaatadaptatie in het kostenverhaal.

Aangezien het kostenverhaal grotendeels ook gevormd wordt door onderhandelingen ben ik benieuwd naar de verschillende posities/meningen die de actoren hebben richting (investeren in) klimaatadaptatie.

<u>Klimaatadaptatie in het kostenverhaal nu</u>

15. Heeft u veel te maken met klimaatadaptatie?
    a. Speelt klimaatadaptatie – of duurzaamheid – een grote rol in de projecten die jullie doen?
16. Als bedrijf, voelt u een sociale verantwoordelijkheid om bij te dragen aan sociale problemen, zoals woningnood maar ook klimaatadaptatie?
    a. Hoe geldt dit voor de betrokken actoren?
17. Vinden jullie klimaatadaptatie en duurzaamheid belangrijk?
18. In hoeverre wordt klimaatadaptatie besproken in de onderhandelingen rondom het kostenverhaal?
    a. Wat voor soort klimaatadaptatie?
    b. Doordat actoren het belangrijk vinden? Of omdat "het moet"?

<u>Eventuele toekomstige rol</u>

19. Zijn de verschillende actoren zich ervan bewust dat klimaatadaptatie van belang is (voor planologie, steden, etc.) in Nederland?
    a. → of dat de gevolgen van klimaatverandering een probleem zijn?
20. Herkennen de verschillende actoren de voordelen van klimaatadaptatie?
    a. Zijn zij dan ook bereid om hiervoor dingen in te leveren (bepaalde eisen/verwachtingen in de onderhandelingen, of kosten te maken voor klimaatadaptatie)?
21. Zou u zeggen dat er een soort van <u>urgentie</u> heerst in de planologie om klimaatadaptatie echt "goed" op te nemen?
    a. Of verschilt dit tussen de projecten/actoren?
    b. Van welke actoren (verwacht u) dat zij hier (klimaatadaptatie) meer waarde aan hechten? Die de urgentie zien/etc.
    c. Wat zou er voor nodig zijn om klimaatverandering - en daarmee klimaatadaptatie - als urgentie te gaan zien?

22. Denkt u dat er ruimte is om klimaatadaptatie verder in het kostenverhaal op te nemen?
    a. *Waarom wel/niet?*
    b. *Op wat voor een manier?*
    c. *Wat zou er eventueel moeten veranderen?*
    d. Ziet u het kostenverhaal überhaupt als een goede manier om klimaatadaptatie te adresseren? *Waarom wel/niet?*
    e. Of een andere belasting/bijdrage/etc.
23. Zie je hierin nog een verschil tussen klimaatadaptatie en klimaatveiligheid?
24. Wanneer zouden ontwikkelaars eerder openstaan om (meer) te investeren in klimaatadaptatie?
    a. *Als ze minder hoeven bij te dragen aan andere publieke doelen*
    b. *Als ze in hogere dichtheden mogen bouwen*
    c. *Als ze meer duurdere huizen mogen bouwen*
    d. *Iets anders*
25. Waar lopen jullie tegenaan m.b.t. klimaatadaptatie?

Afsluiting

Bedankt voor uw tijd.

Voor vragen kunt u mij bereiken via [email].

26. Wilt u verder nog iets kwijt?
27. Wilt u een kopie ontvangen van mijn scriptie?
28. Kent u iemand die ik eventueel ook zou kunnen interviewen over dit onderwerp?

Appendix B English interview guide

Introduction

Thank you for making time for this interview.

This interview is taking place for my master thesis. In my thesis I study several aspect. I mainly focus on land value capture and its negotiations – where I am mostly interested in the attitude of the various actors that are involved. Furthermore, I am also interested in the place that climate adaptation has or could have in these negotiations.

1. Is it okay with you if I record this interview so I can study it through the recording? The recording will only be accessible by me and my supervisor.
2. Do you have any questions?

Introducing questions

3. Could you introduce yourself shortly (naam, function and the company where you work)?
4. What do you do regarding land value capture in your work? (or what have you done?)

Negotiations

The first group of questions is about the land value capture negotiations. I am interested in the different roles of the actors that are involved and their interests, as well as the priorities of the actors (and to what extent they differ from each other) or the knowledge/expertise of the actors (do they have enough expertise to successfully handle the negotiations).

5. What would be your role in the negotiations?
6. What do the negotiations look like? Are they strictly defined by law? *Or are there (big/small) differences in what the negotiations look like or are executed?*
7. What influence do you have? *Power, knowledge, expertise?*

<u>The actors themselves</u>

8. What actors are allowed to participate in the negotiations?
9. How are the negotiations structured? Who makes the first demands? Is that the initiator of the project?
    a. Would this be different when a municipality is the initiator instead of a developer?
10. Over time, do you see changes in the negotiations?
    a. Is there a difference between what demands the local municipalities make now in comparison to what demands they made a few years ago?
11. Do you see difference between the government bodies (big/small, province/municipality) in the negotiations?
    a. If yes, what are these differences?
    b. If yes, what is the cause of these differences?
    c. If no, how come there are no differences?

<u>Relations between actors</u>

12. How would you characterize the relations between actors?
    a. Who holds more power in such a negotiation (or: a stronger negotiation position)?
    b. What causes that? (knowledge/expertise, landownership, etc.)
    c. What consequences could this bring about?

13. Are the goals/ideas of actors similar? Or do some actors value certain aspect (much) more than other actors do?
    a. In what ways do the actors differ?
14. Would you say that the negotiations are effective? Why/why not? Effective in what/what not?
    a. → effective in capturing costs
    b. For who?

Climate adaptation

The next group of questions is about climate adaptation in land value capture.

Since land value capture can be determined by negotiations, I am interested in the different positions/opinions that the actors have in regards to (investing in) climate adaptation.

<u>Climate adaptation and land value capture currently</u>

15. Do you have a lot to do with climate adaptation?
    a. Does climate adaptation – or sustainability – play a big role in the projects that you work on?
16. As a company, do you feel a social responsibility to contribute to social problems as housing shortage or climate adaptation for example?
    a. How does this apply to the involved actors?
17. Do you think that climate adaptation and sustainability is important?
18. To what extent is climate adaptation discussed in land value capture negotiations?
    a. What kind of climate adaptation?
    b. Because the actors think it is important? Or because it is mandatory?

<u>Possible future role</u>

19. Are the different actors aware that climate adaptation is of importance (for spatial planning, cities, etc.) in the Netherlands?
    a. → or that the consequences of climate adaptation can be problematic?
20. Do the different actors recognize the benefits of climate adaptation?
    a. Would they then also be willing to make concessions for this (certain demands/expectations in the negotiation, or to incur costs for climate adaptation)?
21. Would you say there is a sense of urgency in spatial planning to properly account for climate adaptation?
    a. Or does this differ between projects/actors?
    b. Which actors – would you say – find this more valuable? That they see the urgency.
    c. What would be needed to see climate change – and climate adaptation – as an urgency?
22. Do you think there is space to account for climate adaptation through land value capture?
    a. Why/why not?
    b. In what way?
    c. What might have to change?
    d. Do you think land value capture is a good way to address climate adaptation costs at all? *Why/why not?*
    e. Or another tax/contribution/etc.
23. Do you see a difference here between climate adaptation and climate security?
24. When would developers be more open to investing in climate adaptation?

a. *When they have to contribute less to other public goals*
b. *When they are allowed to build in higher densities*
c. *When they are allowed to build more expensive houses*
d. *Something else*

25. What challenges regarding climate adaptation do you face?

Closure

Thank you for your time.

If you have any questions, you can contact me via [email].

26. Is there something else you would like to add?
27. Would you like to receive a copy of my thesis?
28. Do you know anyone else that I could possibly interview as well?

Appendix C Codebook

Code	Meaning
Other	
Case	Cases that the interviewees mention as examples
Interviewee	Information about the interviewee
Group: RQ1	
Actors	What actors take part in land value capture negotiations
Actors: developer	Information about developer
Actors: interested party	Information about parties that have interests in the project
Actors: municipality	Information about municipality
Actors: others	Information about other actors
Landownership	Whenever landownership is of importance
Policy	About certain policies that interviewees mention
Project	When the info is applicable to type of project
Public goals	The different public goals that need to be accounted for
Rules	Rules of the game regarding land value capture negotiations
Rules: bouwbesluit	Information about “bouwbesluit” policy
Rules: ineffective	Whether rules of the game regarding land value capture are ineffective
Rules: onteigenen	Information about "onteigenen" policy
Rules: planbatenheffing	Information about "planbatenheffing" policy
Rules: tender	Information about process of tender
Rules: voorkeursrecht	Information about "voorkeursrecht" policy
Rules: water en bodem sturend	Information about "water en bodem sturend" policy
Rules: zelfrealisatie	Information about "zelfrealisatie" policy
Group 2: RQ2	
Actors expertise	What actors’ expertise is
Actors expertise: developer	Expertise of developer
Actors expertise: municipality	Expertise of municipality
Actors power	How much power (knowledge/expertise) the actors have
Actors power: developer	Power of developer
Actors power: landowner	Power of landowner
Actors power: municipality	Power of municipality
Actors relations	Relations between actors
Didam arrest	Information about "Didam arrest" policy
Land policy instruments	Information about land policy instruments
Group 3: RQ3	
Actors and climate adaptation	What actors think of climate adaptation
Actors awareness	Whether actors are aware of benefits of climate adaptation
Actors ideals	What the ideals of actors look like
Benefits	Possible benefits of investing in climate adaptation
Building sustainably	A sustainable building process
Challenges	Challenges regarding climate adaptation
Changes needed	What changes might be needed on the topic of climate adaptation and land value capture

Clarity	Whether it is clear what investments are needed
Climate adaptation future	How climate adaptation could be accounted for via land value capture in the future
Climate adaptation investments	Investing money in climate adaptation
Climate adaptation now	How climate adaptation is currently accounted for via land value capture
Climate security	Climate security (and difference from climate adaptation)
Demands for climate adaptation	When future users ask for climate adaptation
Location	Location
Maintenance climate adaptation measures	Maintenance
Mandatory	Whether climate adaptation measures are mandatory
Political choices	Influence of political choices regarding climate adaptation
Profits	Actors strive for profits in their projects
Public space	Public space
Urgency	Whether climate adaptation is seen as an urgency
Land value capture and climate adaptation	Relation land value capture and climate adaptation
Value increase	Whether there is a value increase