Steering on feasibility in the context of urban area development

A case study research that explores how public and private actors in collaborative governance steer on feasibility in the context of urban area development

Master thesis | Management in the Built Environment
Isis Sep | 4731093
P5 | June 2023

TU Delft
BK Bouwkunde

Colophon

General

Title	Steering on feasibility in the context of urban area development
Subtitle	A case study research that explores how public and private actors in collaborative governance steer on feasibility in the context of urban area development
Version	P5 report
Date report	23-06-2023
Date presentation	30-06-2023

Contact details

Name	Isis Sep
Student nr.	4731093

Research

Institution	Delft University of Technology
Faculty	Architecture and the Built Environment
Track	Management in the Built Environment
Graduation lab	Urban Development Management
Graduation topic	Feasibility in urban area development

Supervisory team

1st Supervisor	Dr.ir. T.A. (Tom) Daamen
2nd Supervisor	Ing. P. (Peter) de Jong
External examiner	Dr. J.A. (Jorge) Mejı a Hernandez

Graduation company	Fakton Development
Supervisor	R. (Robin) Vriends

FAKTON

Real people. Financial strategies. Resilient places.

TU Delft

Preface

This report contains my graduation thesis about steering on feasiblity in the context of urban area development for the department of Urban Development Management within the master track Management in the Built Environment. It concludes my university studies after five years at the Faculty of Architecture at Delft University of Technology.

Urban area development has always been a subject of great interest to me, particularly the dynamic interplay between public and private actors in collaborative governance processes. I am fascinated by the motives behind their collaboration and how they navigate the complexities of urban area development for steering on feasibility to generate successful project outcomes. This research explores these themes and aims to contribute to the understanding of effective collaboration and risk management in urban area development.

I would like to express my sincere gratitude to my graduation supervisors Tom Daamen and Peter de Jong, for their invaluable guidance and support throughout this research journey. Their expertise and constructive feedback during our sessions were crucial in shaping my ideas and refining my research. I am especially grateful for their continuous encouragement and critisim to challenge my objectives, which pushed me to explore new perspectives in my study. I would also like to extend my thanks to Robin Vriends for his supervison, and to my colleagues at Fakton who were always approachable for a brainstorm and offered their support during the ups and downs of this research journey.

Also, I am deeply thankful to the interview respondents who generously shared their honest opinions and valuable time to contribute to this research. Their insights and experiences have been fundamental in enriching the findings of this study. Without their willingness to participate and their openness in sharing their expertise, this research would not have been possible. I am truly grateful for their contributions, which have greatly contributed to the depth and quality of this work.

This research project has been a journey of growth, learning, whilst pushing for thorough examination. I am grateful for the support and contributions of all who have played a part in this research. Their input and belief in the importance of studying urban area development and collaborative governance have motivated me to strive for excellence in this research. I hope that this work will provide valuable insights and contribute to the ongoing discourse in the field of urban area development and collaborative governance.

Isis Sep

Delf, June 2023

Abstract

Contemporary urban area development is a complex and multifaceted task, requiring the integration of diverse actors, interdisciplinary knowledge, and financial resources. Collaborative governance approaches have emerged as a response to these challenges, emphasizing knowledge-based collaborations and consensus-oriented decision-making. This study aims to investigate how public and private actors in collaborative governance steer on feasibility in the context of urban area development. The research focuses on understanding the assessment of feasibility, important milestones in the governance process, risks that substantially pressure feasibility, and how these risks are managed within collaborative governance agreements. The main research question is: *How do public and private actors in collaborative governance steer on feasibility in the context of urban area development?* The theoretical framework highlights the role of collaborative governance in steering towards feasibility and managing risks in urban area development. The empirical research, based on a case study of the Vroondaal project in The Hague, examines the assessment of feasibility and the management of risks. The findings reveal key risk factors, such as revenue increase, cost increase, cost of land development, interest rate fluctuations, land price, land sale, and market decline. Risk-management strategies include financial models, financing and interest rate considerations, land sale rate and real estate development strategies, investment and revenue adjustments, and collaboration agreements and responsibilities. The study concludes that public and private actors steer on feasibility through collaborative governance processes, as stakeholders collectively identify, analyze, and manage risks in the context of urban area development.

Key words

Public and private actors, collaborative governance, feasibility, urban area development, risk-management

Glossary

BV/CV construction	Refers to a specific legal structure used in the Netherlands for business entities. In the BV/CV construction, a private limited company (BV) is established as the general partner (beherende vennoot) and a limited partnership (CV) is created as the limited partner (commanditaire vennoot).
Collaborative governance	A governance approach that emphasizes knowledge-based collaborations and consensus-oriented decision-making among public and private actors in the context of urban area development.
Context of urban area development	The context of urban area development is interdisciplinary as it involves multiple disciplines and fields of expertise, bringing together knowledge and perspectives from different areas, such as economic, political, social and environmental.
Feasibility	The assessment of the practicality and viability of proposed initiatives in the context of urban area development, considering economic, political, social, and environmental factors.
GEM	A joint land exploitation company (GEM) is a specific form of cooperation between public and private parties in urban area development in the Netherlands. It is an entity established to jointly manage and carry out the land exploitation of a particular urban area.
Milestones	Important events or achievements that mark significant progress in the governance process of urban area development projects, often related to decision points, approvals, or key project milestones.
Net Present Value (NPV)	A financial calculation used to determine the present value of future cash flows, taking into account the time value of money, and commonly used in assessing the financial feasibility of urban area development projects.
Risks	Elements or events that pose a potential threat to the feasibility and success of urban area development projects, including revenue fluctuations, cost increases, interest rate fluctuations, market dynamics, and other relevant risk factors.
Risk-management strategies	Measures and approaches adopted to identify, analyze, and mitigate risks in urban area development projects, aiming to minimize uncertainties and enhance project feasibility.

Steering	In the context of urban area development, steering refers to strategic management and decision-making employed by public and private actors to ensure the feasibility of a project. Effectively steering involves actively managing and addressing the various factors and risks that can impact the feasibility of an urban area development.
Urban area development	The process of transforming urban areas through the planning, design, and implementation of projects that encompass various aspects such as infrastructure, housing, transportation, and public spaces.
VEM	A joint real estate exploitation company (VEM) is an entity established by multiple parties to jointly manage and operate the development of real estate. It is a form of cooperation in which the parties involved combine their real estate interests and are jointly responsible.

Executive summary

Introduction

Contemporary urban area development presents a complex set of challenges and ambitions, and has emerged as a multifaceted and integral task involving diverse actors and requiring the integration of different fields of expertise and financial resources. Consequently, a collaborative goverance approach has gained prominence, advocating for knowledge-based collaborations and consensus-oriented decision-making processes to achieve successful outcomes. The interplay of public and private acotrs in collaborative governance plays a significant role in generating feasible projects, and careful consideration of diverse interests, conditions, and benefits is imperative. Risk management is a crucial factor in ensuring feasibility, as development projects are exposed to financial uncertainties, environmental challenges, social conflicts, and regulatory complexities. Understanding the impact of risks on feasibility and their management within collaborative governance agreements is essential to mitigate setbacks and enhance project succes in the context of urban area development.

This study recognizes that urban area development transcends disciplinary boundaries and necessitates integration of knowledge, sharing resources, and risk allocation through partnerships between public and private actors. Therefore, understanding the dynamics and implications of the interaction between these actors is essential for effective governance and risk management. By investigating the steering mechanisms employed by public and private actors in collaborative governance, this research aims to contribute to the knowledge and understanding of feasibility in the context of urban area development.

Problem statement and research aim

Collaborative governance approaches have emerged as a response to the challenges associated with urban area development, emphasizing knowledge-based collaboration and consensus-oriented decision-making. This type of collaborations are often related to successful projects. However, there is a need to explore how public and private actors in collaborative governance processes effectively steer on feasibility in the context of urban area development. This thesis aims to investigate how public and private actors in collaborative governance steer on feasibility in the context of urban area development. Feasibility, in this context, refers not only to the practicality and viability of proposed initiatives of urban area development, but primarily focusses on how actors assess feasibility. By examining the collaborative governance process, important milestones are identified, focussing on risk-management strategies that includes economic, political, social and environmental factors. Additionally, risks that substantially pressure feasibility in the context of urban area development are researched on how these are managed within collaborative governance agreements. This research seeks to shed light on risk factors influencing feasibility in the context of urban area development and how public and private actors in collaborative governance assess feasibility as part of their governance processes to effectively steer on feasible outcomes.

Research questions

The main research question this thesis seeks to answer: *How do public and private actors in collaborative governance steer on feasibility in the context of urban area development?* The sub research questions are designed to explore various aspects related to feasibility in the context of urban area development:

1. What is feasibility in the context of urban area development?
2. What milestones in the collaborative governance process of urban area development are important with regards to risk-management?
3. What risks do substantially pressure feasibility of urban area development?
4. How are these risks managed (within collaborative governance agreements)?

The study explores the connections between the research elements through a literature review and case study research of one urban area development project: Vroondaal, The Hague. The study, consisting of theoretical frameworks, data collection and data analysis seeks to shed light on the risk factors affecting feasibility, the role of risk-management in collaborative governance processes and risk-management strategies in collaborative governance for steering on the feasibility in the context of urban area development.

Theoretical framework: A theoretical perspective on feasibility in the context of urban area development

The findings of the literature study are summarized in a theoretical framework that draws the relations between the research concepts, see Figure A. Collaborative governance plays a significant role in steering towards feasibility and managing risks in the context of urban area development. The context of urban area development adds complexity due to the dynamic and multifaceted character of urban area development. This necessitates a comprehensive understanding of the economic, political, social and environmental factors that influence feasibility and risk management strategies. Therefore, it involves the collaboration and coordination of multiple stakeholders, and ask parties to engage in a collaborative governance process. This collaborative approach allows for a collaborative governance process that asks for the pooling of resources, expertise, and decision-making, leading to more effective risk management and improved assessment of feasibility.

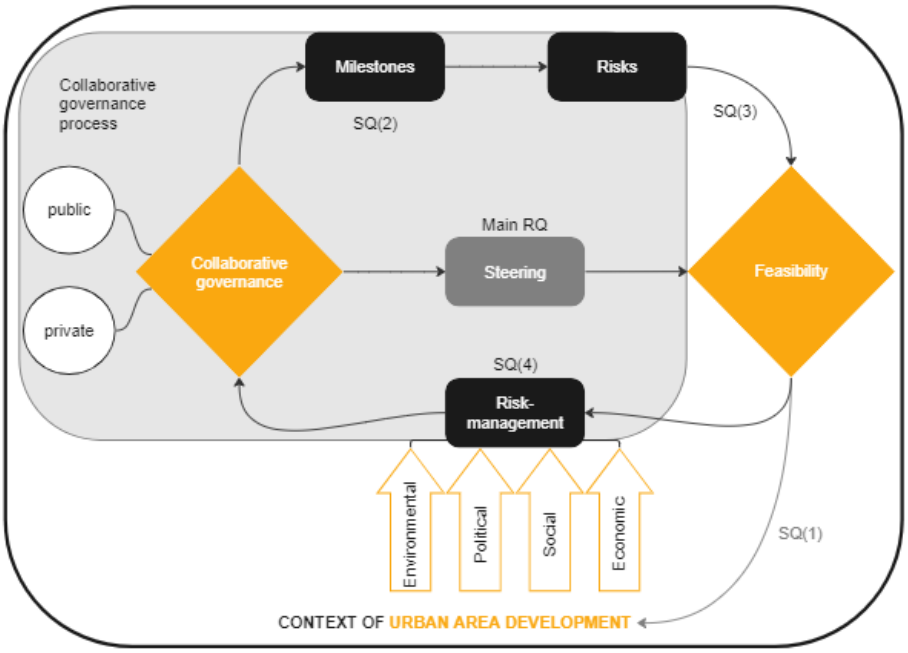

Figure A Research concepts and conceptual model (Own illustration)

Empirical research: An empirical perspective on feasibility in the context of urban area development

Feasibility in the context of urban area development has been researched as equivalent to the financial business case, the land exploitation model. This is indicated by a net present value (NPV) calculation in which the recovery of costs is related to the eventual land sale. However, both cost and revenue forecasts are based on assumptions in time and include uncertainties about cost and revenue increase, cost of land development, interest rate fluctuations, development of land prices and rate of land sale. These risks pressure the feasibility of urban area development. Risk analysis indicate important risk factors that impact costs and revenues. The assessment of these risks is linked to the assessment of feasibility. Sensitive parameters were likely to impact the land exploitation result and mitigated by risk-management strategies. Figure B indicates the structure of the empirical research framework as supported by the findings of the theoretical research.

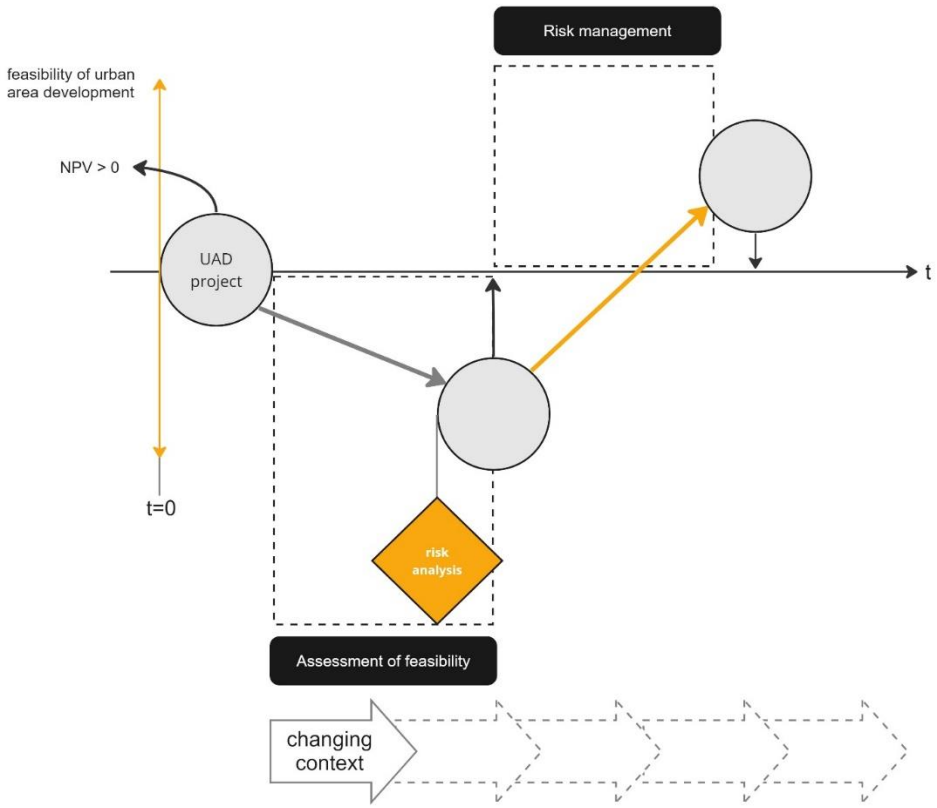

Figure B Research framework for empirical research (Own illustration)

The empirical research findings have indicated how feasibility was assessed and what risks substantially pressured the feasibility of urban area development. The most important risks with regards to feasibility were:

Risk	**Description**
Revenue increase	Potential uncertainty and delay in realizing expected revenues and deviation from anticipated revenue growth percentages in the land exploitation.
Cost increase	Potential increase in project costs and their impact on financial feasibility.
Cost of land development	Potential increase in costs related to land development activities.
Plan development costs	Expenditures associated with the planning and development of the project.
Interest rate	Fluctuations in interest rates and because of uncertainty in financing agreements.
Land price	Decline in average land prices, affecting the financial aspects of the project.
Land sale	Market demand and the ability to achieve expected sales rates.
Market decline	Downturns or changes in the real estate market that affect sales and profitability.

The empirical findings on risk-management within collaborative governance agreements revealed several strategies and considerations. The risk-management strategies can be categorised as follows:

Risk-management strategy	Description
Financial models	The importance of assessing risks and opportunities through comprehensive risk analysis and maintaining a balance between investments and opportunities by utilizing equity capital. Updating risk assessments and adjusting parameters to ensure accurate financial modelling (such as Net Present Value calculations) were identified as essential for effective risk management.
Financing and interest rate	Measures such as reducing the financing limit and ensuring financing capacity through short-term and long-term agreement. Balancing debt and liquidity, adjusting loan agreements, and aligning equity capital and loans were also highlighted as important factors.
Land sale rate and real estate development	Managing land acquisition obligations, establishing moments for land acquisition, and accelerating land development were identified as risk mitigation strategies. Collaboration and open communication among stakeholders were emphasized as crucial for addressing challenges and renegotiating development rights.
Investments and revenues (incl. land price)	Maintaining consistency in cost repayment, discussing the market-based nature of land prices, and adapting to changing market conditions were key considerations. Adjusting land prices and expanding the supply of project-based housing were identified as strategies to address market dynamics.
Collaboration agreements and responsibilities	Leveraging the knowledge and experience of both public and private partners, recognizing the interplay between private law and public law in project governance, and collaborating closely with the municipality for legal requirements, permits, and modifications to land-use plans were emphasized as critical factors.

Conclusion

The research findings have indicated that public and private actors in collaborative governance steer on feasibility in the context of urban area development through their collaborative governance process in which decision-making for addressing and identifying risks in the context of urban area development, effective risk-management strategies, and collaboration agreements are crucial. The integration of knowledge, sharing resources, and risk allocation through collaborative governance agreements between public and private actors allowed for adaptability that was crucial for effective risk-management.

Both theoretical findings and empirical findings substantiate that the identification of risks is crucial for effective risk management in any project, including urban area development. In the context of urban area

development, risk identification involves the various dimensions of urban area development, such as economic, political, social and environmental aspects. To properly identify risks, stakeholders should gain a comprehensive understanding of potential challenges and uncertainties that may impact the feasibility of the project. This necessitates a collaborative governance approach where stakeholders can align their interests, expectations, perspectives, and responsibilities, enhancing a collaborative approach to risk management.

Through collaborative governance processes, public and private actors can collectively identify, analyse and manage risks associated with urban area development. By sharing knowledge and resources, stakeholders can develop effective risk-management strategies. This collaborative governance approach enhances feasibility in the context of urban area development by minimizing uncertainties and maximizing opportunities. Therefore, feasibility in the context of urban area development is an outcome of collaborative governance efforts. Collaborative governance enables shared decision-making and effective risk management, ultimately leading to the successful realisation of urban area development initiatives. These insights have been reflected upon theoretical research and addresses a new approach for how the field of urban area development should understand and assess feasibility, see Figure C.

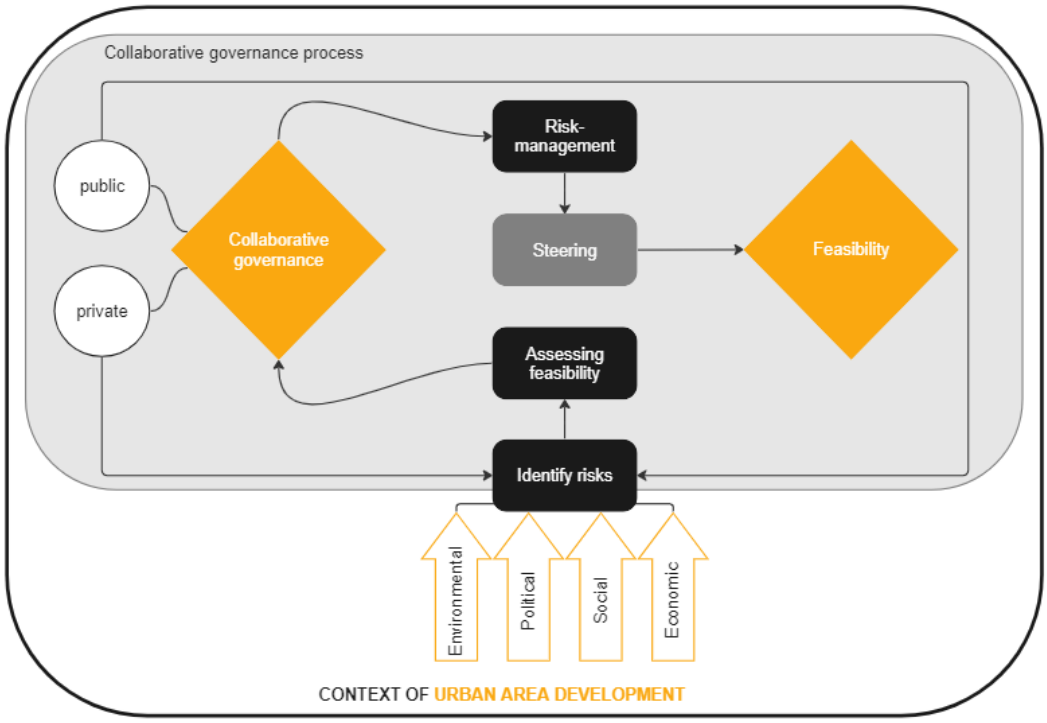

Figure C Feasibility in the context of urban area development (Own illustration)

Table of Contents

List of Figures

List of Tables

1 Introduction

Nowadays, urban area development has become increasingly complex. Ambitions towards a sustainable environment affect ambitions and perspectives about what the city must satisfy (Gluch & Månsson, 2021). These ambitions are linked to major challenges such as mobility and transportation, health, social cohesion and diversity, energy transition and climate adaptation in addition to meeting the pressing demand for housing and other functions (Heurkens et al., 2020; Marat-Mendes et al., 2021). This makes urban area development a complex integral task on which multiple parties are working over an extended period of time (Franzen et al., 2011). The multifaceted process of urban area development involves a wide range of actors and requires the integration of diverse expertise and resources. Considerable interests can vary from socio-economic, political and financial interests to the interests of the users or residents of the area (Franzen et al., 2011). The need for multiple (both public and private) resources are combined with risky investments and has resulted in complicated financing of urban area development (Heurkens et al., 2020). Therefore, the variety of interests, conditions and benefits must always be considered.

The complexity of urban area development necessitates a collaborative governance approach (Ansell & Gash, 2007), which emphasizes developing cities based on knowledge and experience instead of the more conventional method of municipal and governmental-led spatial planning. This strategy includes managing both public and private initiatives in urban area development. With the use of this strategy, which incorporates governance, urban planning, economic growth, financial management, social planning, and marketing, Franzen et al. (2011) argues that both public and private parties can engage in a more integrated strategic decision-making process. Knowledge-based collaborations and a consensus-oriented decision-making processes are motivated by mutually beneficial goals and result in pooling resources, knowledge and risk sharing (Sagalyn, 2007). In this context, ensuring the feasibility of urban area development becomes a crucial aspect for achieving sustainable and successful outcomes.

The financial constraints by government and market parties have pressured public financing in urban area development, especially since the economic crisis of 2008 (Chen, 2022). Nevertheless, public financing plays an important role in generating feasible urban area development, especially when the project appears feasible at first (Doloi, 2009). Therefore, financing of urban area transformations has become a complex task, because it requires various (public and private) contributions that must be combined with risk-bearing investments (Heurkens et al., 2020). When considering the financing, one should always consider multiple interests, diverse conditions and multiple benefits. Furthermore, risk-management plays a crucial role in ensuring the feasibility of urban area development. Development projects are inherently exposed to various risks, such as financial uncertainties, environmental challenges, social conflicts, and regulatory complexities. Understanding how risks impact feasibility and how they are managed within collaborative governance agreements is vital for mitigating potential setbacks and ensuring project success.

This study recognizes that urban area development goes beyond the boundaries of a single field of expertise. It requires the integration of knowledge, resources and risk sharing, and asks for partnerships between public and private parties. Therefore, understanding the interaction between public and private parties and their implications on feasibility is essential for effective governance and risk-management.

1.1 Problem statement

The research problem arises due to the complexity of urban development, which involves a multitude of actors, interdisciplinary knowledge, and diverse interests. Collaborative governance approaches have emerged as a response to the challenges associated with urban area development, emphasizing knowledge-based collaboration and consensus-oriented decision-making. This type of collaborations are often related to successful projects. However, there is a need to explore how public and private actors in collaborative governance processes effectively steer on feasibility in the context of urban area development. The research problem in this study is centred around understanding how public and private actors in collaborative governance steer on the feasibility in the context of urban area development. Feasibility, in this context, refers not only to the practicality and viability of proposed initiatives of urban area development, but primarily focusses on how actors assess feasibility. Therefore, the governance process involves risk-management strategies that considers economic, political, social and environmental factors.

1.2 Research aim

This thesis aims to investigate how public and private actors in collaborative governance steer on feasibility in the context of urban area development. Feasibility, in this context, refers not only to the practicality and viability of proposed initiatives of urban area development, but primarily focusses on how actors assess feasibility. By examining the collaborative governance process, important milestones are identified, focussing on risk-management strategies that includes economic, political, social and environmental factors. Additionally, risks that substantially pressure feasibility in the context of urban area development are researched on how these are managed within collaborative governance agreements. This research seeks to shed light on risk factors influencing feasibility in the context of urban area development and how public and private actors in collaborative governance assess feasibility as part of their governance processes. The research contributes to pragmatic insights in collaboration agreements that can be difficult to obtain due to the long project duration and confidential nature of the agreements.

1.3 Research questions

The research questions in this study are closely aligned with the research problem and research aim and explore how public and private actors collaborate in governance processes to effectively steer on feasibility in the context of urban area development. The main research question this thesis seeks to answer:

How do public and private actors in collaborative governance steer on feasibility in the context of urban area development?

The sub research questions are designed to explore various aspects related to feasibility in the context of urban area development, identify milestones in governance processes that ask for risk-management (strategies), analyse recurring risks that pressure feasibility and understand the agreements within

collaborative governance to manage risks. The sub-questions specifically enquire the understanding of how actors assess feasibility by identifying important milestones related to risk-management and the examination of risk factors that impact feasibility. It is important to note that the main research question encompasses public and private parties in collaborative governance taking decisions considering feasibility. However, feasibility can be assessed by actors from outside this collaboration to then support the parties involved in collaborative governance in their decision-making.

The first sub-question aims to establish a comprehensive understanding of feasibility and its key factors in the urban area development context.

1. *What is feasibility in the context of urban area development?*

The second sub-question identifies important milestones in the governance process of urban area development that require risk-management strategies.

2. *What milestones in the collaborative governance process of urban area development are important with regards to risk-management?*

The third sub-question investigates the various risks that (recurringly) pose challenges to feasibility in the context of urban area development.

3. *What risks do substantially pressure feasibility of urban area development?*

The fourth and last sub-question explores how risk factors are managed within collaborative governance agreements that address challenges and ensure feasibility.

4. *How are these risks managed (within collaborative governance agreements)?*

By addressing these research questions, the study aims to provide pragmatic insights into collaborative governance agreements and contribute to understanding how public and private parties in collaborative governance can enhance and increase the feasibility of urban area development.

1.4 Conceptual model

The conceptual model emphasizes the relationships between research concepts of collaborative governance and feasibility in the context of urban area development. It suggests that public and private actors in collaborative governance steer on feasibility in the context of urban area development. The conceptual model for this research is represented in Figure 1.

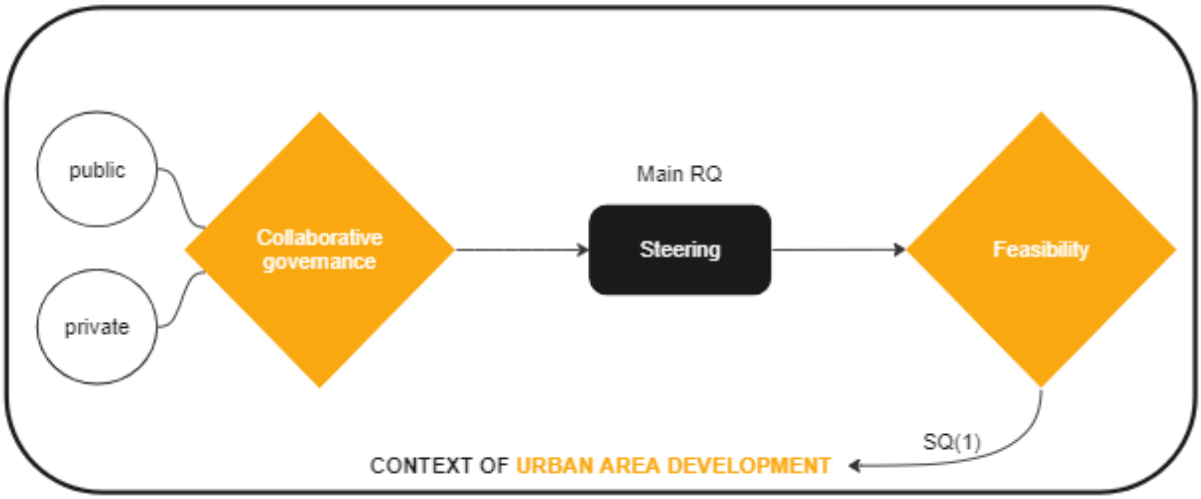

Figure 1 Conceptual model (Own illustration)

The study explores the connections between the research elements through theoretical frameworks, data collection, and analysis. It seeks to shed light on the risk factors affecting feasibility, the role of risk-management in collaborative governance processes and risk-management strategies in collaborative governance for steering on the feasibility of urban area development projects.

1.5 Societal and scientific relevance

This research contributes to both academic literature and practical know-how, providing relevant knowledge to both fields. For its scientific relevance, this thesis contributes to the research on feasible urban area development and generates deeper insight in collaborative governance agreements in Dutch urban area development. As Doloi (2009) and Bruil et al. (2004) acknowledge, scientific literature falls short on public-private partnerships and urban area development. This research in urban area development in The Netherlands is still a modest contribution to academic literature. Future research shall expand the body of knowledge on the subject. However, as the demand for housing persists, new and existing areas will be developed to meet the pressing demand for housing. This emphasizes the practical relevance of this research and the possibility to reflect and learn on former urban area development. The research also provides actors involved in the case the possibility to reflect on aspects like collaboration, accountability, trust, joint-risk management, and eventually will support collaboration between public and private parties in urban area development.

1.6 Structure

The structure of the research chapters aligns with the research questions and the combination of theoretical research and empirical research. Chapter 2: Theoretical research explores existing literature and theoretical frameworks related to urban area development, collaborative governance, decision-making processes,

feasibility in urban area development and risk management. The perspective on feasibility is substantiated by theoretical frameworks and establishes a research framework for the study. This provides the theoretical perspective on sub-question 1. Chapter 3: Methodology provides a detailed description of the research design, including the exploratory nature of the study. It discusses the data collection methods of document analysis and in-depth interviews and elaborates on the sample size, selection criteria and data analysis techniques. Chapter 4: Empirical research presents the empirical findings related to all sub-questions. It analyses the identified milestones and provides qualitative data from document analysis and in-depth interviews to support the findings. Also, it explores the risks that have been examined in the study and analyses the impact of these risks on the feasibility and examines how they have been managed within the collaborative governance agreements. Therefore, it examines how actors assess and evaluate feasibility in the decision making process of urban area development. Chapter 5 Conclusion and Chapter 6 Discussion and recommendations synthesize the findings from the empirical research and connects them to the existing literature and theoretical framework. It discusses the implications of the research findings for theory, practice, and policy and addresses the research aim and research questions, providing comprehensive insights into collaborative governance and feasibility in the context of urban area development.

2 Theoretical perspective on feasibility in the context of urban area development

2.1 What is urban area development?

Urban area development aims to develop urban areas by bringing parties together that influence the change of urban areas in general. Urban area development can be distinguished from urban planning as this is more concerned with the design of areas rather than managing the different parties involved. De Zeeuw's (2018) definition of 'Gebiedsontwikkeling', the Dutch translation of urban area development, describes urban area development as the art of connecting functions, disciplines, parties, interests and cash flows, for the purpose of developing or transforming an area. Characteristics of urban area development include (Reiswijzer Gebiedsontwikkeling, 2019):

- the process and content are inseparably linked;
- many different parties are involved: governments, developers, social organizations, residents and neighbours;
- it often involves a combination of public and private interests;
- collaboration between governments and market parties is inevitable for the necessary land transactions, public-law frameworks and the elaboration of the plan development;
- at least one shareholder with investment resources is required;
- the project has a long duration;
- it takes place in a context with (external) effects on the area.

This shows that the definition of urban area development is not as straightforward as one might expect. Therefore, this chapter elaborates on the characteristics of urban area development, involved actors and their interests.

2.1.1 The context of urban area development

In urban area development, an area is completely or partially redeveloped or provided with new functions. Land is designated for the many functions, including living, working, and recreational activities, as well as infrastructure. The land exploitation includes the purchasing, preparing a site for construction and living, and selling of land. Land development includes real estate development, whether or not it is socially or publicly financed. Additionally, plan development is concerned with the actual site preparation and real estate development. This means that urban area development leads to the alignment of various interests and public and private functions (Reiswijzer Gebiedsontwikkeling, 2019).

The scope of urban area development has become increasingly complex. Ambitions towards a sustainable environment affect aspirations and perspectives about what the city must satisfy (Gluch & Månsson, 2021). These perspectives are linked with other important concerns (Marat-Mendes et al., 2021) like mobility and transportation, health, social cohesion and diversity, the energy transition, and climate adaptation in addition to meeting the pressing demand for housing and other functions (Heurkens et al., 2020). Various interests can vary from the interests of the users (social interests), to socio-economic and political interests, and major financial interests (Franzen et al., 2011). Therefore, the complex process of urban area development involves challenges in the economic, political, social and environmental domains.

2.1.1.1 Economic context

The economic context of urban area development refers to dynamics that influence urban growth and development, such as market demand, employment opportunities and the financial feasibility of development projects (Franzen et al., 2011). Urban development decisions are heavily influenced by economic factors because projects must show their ability to be financially feasible, draw financing, and promote economic growth and prosperity. Within the economic context of urban area development, factors like land values, real estate markets, infrastructure investments, and the potential for job creation and economic diversification are crucial factors to take into account.

2.1.1.2 Political context

The political context of urban area development encompasses the governance structures and policy frameworks that shape decision-making and governance arrangements. Political dynamics have an impact on processes for engaging stakeholders, allocating resources, and governance arrangements. This is because the urban area is connected to various levels of policy authorities (Franzen et al., 2011). Next to municipal policies concerning the development of the area, regional or provincial, national and European level of policies are equally relevant. Urban development outcomes and the allocation of benefits and costs are shaped by these dynamics and different political interests. Therefore, political considerations for effective and inclusive urban area development include aspects like public participation, transparency, accountability, and intergovernmental relations.

2.1.1.3 Social context

The social context of urban area development encompasses the social demographics, cultural diversity, and community dynamics within urban areas (Franzen et al, 2011). It acknowledges that urban development initiatives have significant implications for society and affect quality of life, social equity, and sense of community. Access to housing, public services, healthcare, education, cultural facilities, and social infrastructure are examples of the social context. The social context also takes into account things like community involvement, social inclusion, cost, and how development will affect weaker or more vulnerable groups.

2.1.1.4 Environmental context

The environmental context of urban area development addresses natural resources and ecology, and environmental sustainability aspects of urban growth. It acknowledges how urbanization affects biodiversity, air quality, water resources, ecosystems, and climate change (Gluch & Månsson, 2021). The environmental context includes elements like sustainable transportation systems, green infrastructure, and environmental regulations. Reducing carbon emissions, boosting energy efficiency, minimizing environmental risks, maintaining green space, and incorporating sustainable practices are all aspects of environmental considerations in urban area development that improve resilience and adaptability to climate change.

2.1.2 Actors in urban area development

Transformations in urban area development involve a variety of parties (Adams & Tiesdell, 2012). The fact that so many disciplines and fields of knowledge are involved in urban area development, requires multi-

actor governance. The characteristics, motivations and interests of these parties are covered in this paragraph.

2.1.2.1 Public parties

Public parties involved in urban area development include government authorities at the local, regional, and national levels. These authorities are responsible for developing and implementing policies, regulations, and plans that guide urban development, as well as providing funding and other resources for infrastructure development and public services. Public parties involved in urban area development may include:

- local government agencies, such as city councils and planning departments;
- provincial governments or metropolitan regions;
- national or federal government agencies, such as ministries responsible for housing, infrastructure, or urban development.

The Netherlands are known for their comprehensive planning culture which is characterised by a sophisticated system of planning institutions and mechanisms, significant public investments and formal spatial planning documents. Specific tools like land use plans and active or passive land development practices are deployed by Dutch municipalities (Buitenlaar & Bregman, 2016).

Municipalities engage in public law activities such as developing land-use plans and granting (building) permits, but it can also engage in private law activities also known as active land policy, by pursuing its own land development (Franzen et al., 2011). In Dutch practice, municipalities frequently develop land or establish development firms and take part in urban area development as a developing partner (often when there are important municipal interests at stake).

2.1.2.1.1 Active land policy

Active land policy is characterized by the government taking a leading role in land development, decision-making, regulation, and intervention. Comprehensive use of land-use plans, public laws and regulations, and interventions like land purchase, redistribution, and development rights are common components of active land policy (Reiswijzer Gebiedsontwikkeling, 2019). The government may actively take part in land markets, support building affordable housing, and advocate for sustainable land management techniques. Active land policy acknowledges that the market alone may not achieve desirable outcomes and aims to address market failures, promote social equity, and pursue long-term sustainability goals.

2.1.2.1.2 Facilitating (or passive) land policy

Facilitating or passive land policy is characterized by a limited government role in land acquiring, development and decision-making, and a greater reliance on market parties to determine land use outcomes. This strategy supports the idea to efficiently allocate land and adapt to shifting market demands (Reiswijzer Gebiedsontwikkling, 2019). Facilitating land policy encourages private investment and market-driven development. The government's role is mainly to provide infrastructure, basic services, and a supportive policy framework to enable private sector-led development. Facilitating land policy assumes that

the market will naturally align land use with the demands of users and investors, resulting in efficient and responsive outcomes.

Public parties engage in urban area development to realise their broader economic, social and environmental goals for city growth and development, whilst other (private) interests are more focused on financial return and political considerations (Adams & Tiesdell, 2012). Examples of these include:

- urban area development creates jobs and attracts investments which stimulate the economic growth of the city or region;
- urban area development improves the quality of life and liveability of cities by providing access to affordable housing, public services, green spaces and cultural amenities;
- urban area development enhances social equality by providing access to affordable housing and public services, and therewith promoting diversity and inclusion of society;
- urban area development ensures environmental sustainability by protecting natural resources, reducing CO2 emissions and promoting sustainable transportation and infrastructure.

2.1.2.2 Private parties

Private parties involved in urban area development include various stakeholders, such as developers, banks, and investors. These private actors play a crucial role in shaping and executing urban area development initiatives (Sagalyn, 2007). Currently, various forms of public-private partnership shifted from public finance to capital markets and private investments in the built environment (Chen, 2022). This paragraph explores the interests of private parties in urban area development, focusing on developers, banks, and investors, and sheds light on the interests, motivations, objectives, and considerations that drive private actor's involvement in urban area development.

2.1.2.2.1 Developers

Developers engage in urban area development for the realisation of real estate development projects (Franzen et al., 2011). Their interests are focused on market opportunities, project success, and financial returns. Their motivations and considerations include:

- participating in urban area development provides opportunities to seek financial gains and profitability and return on their investments. Their primary interest lies in maximizing the return on investment by successfully completing and selling developed real estate.
- Developers are driven by market demand for different types of real estate, such as residential, commercial, or mixed-use projects. Their interest in feasible development opportunities is monitored by market trends, including economic factors and consumer preferences.
- Developers ensure the viability and profitability of development projects and conduct feasibility studies and financial analyses to assess the risks associated with the project, including financial, market, regulatory, and construction risks.

2.1.2.2.2 Banks

Banks play a crucial role in financing urban area development projects, providing financial expertise and capital (Demirag et al., 2012). Their interests are focused on risk management, profitability, and regulatory compliance. Their motivations and considerations include:

- participating in urban area development provides banks with the opportunity to diversify their loan portfolios and long-term interest returns.
- Banks are driven by financial performance and repayment of borrowers. Their interests lie in assessing the creditworthiness and financial feasibility of urban area development projects to mitigate the risk of default and ensure timely loan repayment. They conduct risk assessments before and during financing urban area development projects and evaluate factors such as market conditions and borrower credibility to mitigate financial risks.

2.1.2.2.3 Investors

Investors including institutional investors and private equity firms, participate in urban area development projects to provide capital (Reiswijzer Gebiedsotnwikkeling, 2019). Their interests are focused on diversifying investment portfolios and generating returns on investment. Their motivations and considerations include:

- participating in urban area development provides investors with the opportunity to seek for investment opportunities that offer balanced risk-return profiles
- Investors aim to spread risks over different asset portfolios and enhance the performance of their portfolios.
- Investors prioritize development projects that align with sustainable development goals (ESGs).

Private parties with varying interests and objectives in urban area development include developers, banks, and investors. Market opportunities, project success, and financial returns are what motivate developers. Risk management, loan repayment, and regulatory compliance are priorities for banks. Investors look for appealing returns, portfolio diversification, and sustainability considerations. For effective governance and financing in urban area development, it is essential to consider these interests in collaboration agreements.

2.1.3 Risks in urban area development

All types of urban area development have an above-average high risk profile. This is due to the generally long preparation and execution time, averaging around twenty years, and because assumptions may change along the way, requiring new adjustments. The large scale of area developments introduces uncertainty in the market demand for the to be built functions within sub-projects. Furthermore, these projects involve a mix of functions and are capital-intensive due to factors such as land acquisition and the numerous required investigations. Aligning diverse interests and effectively managing risks is an important aspect of the area development process (Reiswijzer Gebiedsontwikkeling, 2019). The risks will be further elaborated upon in this section.

For public and private parties involved in urban area development, it is crucial to identify and allocate risks as much as possible. This involves determining which parties will bear specific risks. The following risks are relevant in urban area development (Bregman et al., 2017):

- Risks related to spatial planning: This includes administrative, political, and administrative law risks.
- Risks related to land development: This includes risks associated with soil conditions such as contamination, archaeology, and load-bearing capacity.
- Risks related to the costs of land development activities and cost recovery: This mainly involves the stagnation of land allocation.
- Risks related to real estate development: This includes cost and market risks.

The general rule is to allocate risks to the party that has the most influence over those risk factors (Willumsen et al., 2019). However, the specific allocation resulting from the application of this rule is highly dependent on the circumstances of each specific spatial development project, making it difficult to make general statements in this regard. The aforementioned risks are limited to the distribution of risks associated with land exploitation. These risks are associated with events and circumstances that can be attributed to one or more parties. Legal risks, such as tax risks, procurement risks, the risk of not being able to acquire lands or buildings in a timely manner, and the risk of not being able to recover the costs of certain investments, are not covered.

Land exploitation and real estate exploitation risks encompass a distinct set of risks associated with different phases and aspects of urban area development projects. Land exploitation risks primarily pertain to the allocation and utilization of land for development purposes, while real estate exploitation risks relate to the subsequent development and utilization of constructed properties.

2.1.3.1 Land exploitation risks

Land exploitation risks involve various factors that can impact the successful implementation of urban area development. These risks may include uncertainties regarding spatial planning (Bregman et al., 2017), such as administrative, political, and administrative law risks. Additionally, risks associated with land development can arise from soil conditions, such as contamination, archaeology, and load-bearing capacity. Moreover, risks related to the costs of land development activities and the recovery of these costs can emerge, particularly due to potential delays or stagnation in land allocation. Lastly, risks linked to real estate exploitation encompass aspects such as cost fluctuations and market uncertainties related to the development, sale, or leasing of properties. This is particularly important when a residual land value is applied for land sale.

2.1.3.2 Real estate exploitation risks

Real estate exploitation risks primarily focus on the utilization and commercialization of constructed properties. These risks involve considerations such as market demand, pricing fluctuations, and the ability to effectively market and sell developed properties. Additionally, risks associated with real estate exploitation include uncertainties in tenant occupancy, lease agreements, and potential delays in achieving

the anticipated return on investment (Bergman et al., 2017). Understanding and managing these risks are crucial for both public and private entities involved in urban area development projects.

Proper risk assessment and the allocation of risk strategies should be implemented to mitigate the potential negative impacts and uncertainties associated with land and real estate exploitation. This necessitates comprehensive planning, effective project management, stakeholder collaboration, and the integration of legal and regulatory frameworks to ensure the successful execution of development projects while minimizing potential risks. This will be further elaborated in paragraph 2.3.2.2.

2.2 Collaborative governance as an approach for effective urban area development

In the context of urban area development, collaborative governance and urban area development are interrelated concepts. Collaborative governance can be seen as a governance approach that is employed in urban area development processes to address the complexity and diversity of stakeholders and interests involved. It includes governance processes that emphasize the active participation and collaboration of public and private actors, as well as the integration of interdisciplinary knowledge and consensus-oriented decision-making. Urban area development, on the other hand, refers to the transformation of urban areas to provide housing and other functions, and is linked to other significant challenges (Heurkens et al., 2020). This requires contributions from various public and private actors and considers the variety of interests, conditions and benefits. In this context, collaborative governance is considered a means to achieve effective urban area development. It brings together public and private actors and provides a framework for collaboration, coordination and collective decision-making among different actors, including government authorities, developers, banks, investors, users and other stakeholders.

Collaborative governance recognizes that no single entity or sector has the ability to address the complexities and challenges of urban area development alone. Instead, this governance approach promotes partnerships and collaborative efforts to utilize the collective knowledge, resources, and expertise of various actors. Therefore, collaborative governance serves as an approach employed within the broader context of urban area development processes. It provides a structure and framework for the governance of urban area development projects, facilitating stakeholder engagement, managing conflicts and achieve feasible outcomes. This approach has replaced managerial modes of failed policy making and implementation by a collective decision-making process that is formal, consensus-oriented and deliberative to manage the plurality of conflicts (Ansell & Gash, 2007). This chapter focusses on the characteristics of collaborative governance and elaborates on the approach, process and agreements in the context of urban area development.

2.2.1 Collaborative governance approach

Collaborative governance refers to an approach that encourages the active engagement and participation of stakeholders from different sectors, including government, civil society, and the private sector, in decision-making processes (Ansell & Gash, 2007). It recognizes the limitations of top-down governance models and the need to involve various actors who have diverse knowledge, experiences, and resources. By fostering collaboration, shared responsibility, and inclusive decision-making, collaborative governance aims to address complex public issues effectively and enhance policy outcomes (Emerson et al., 2011). This governance approach emphasizes the involvement and active participation of diverse stakeholders in decision-making processes. It is characterized by collaboration, cooperation, and shared responsibility among stakeholders from different sectors, including government agencies, non-governmental organizations, community groups, and the private sector. This collaborative approach aims to address complex public issues and foster inclusive and sustainable outcomes with the expertise of the private sector.

Therefore, collaborative governance is applied in various contexts, including urban area development, environmental management, public health and social policy. It offers a more inclusive, participatory, and democratic approach to governance, harnessing the collective wisdom and resources of stakeholders to address complex societal challenges effectively.

Emerson et al. (2011) have established a framework for collaborative governance that includes three dimensions: system context, collaborative governance regime, and collaboration dynamics, see Figure 2. The system context is the outermost box in the framework and represents the larger context in which the collaborative governance regime operates. This includes political, legal, socio-economic, environmental, and other influences that affect and are affected by the collaborative governance regime. The system context generates opportunities and constraints that influence the dynamics of collaboration at the outset and over time. The collaborative governance regime is the second box in the framework and represents the formal or informal arrangements among stakeholders to address a shared problem or goal. This includes structures, processes, rules, norms, and incentives that guide interactions among stakeholders. Collaboration dynamics are represented by the third box in the framework and include internal processes within a collaborative governance regime that shape how stakeholders interact with each other. This includes decision-making processes and relevant aspects like communication, trust-building mechanisms, conflict resolution strategies, and adaptive capacities.

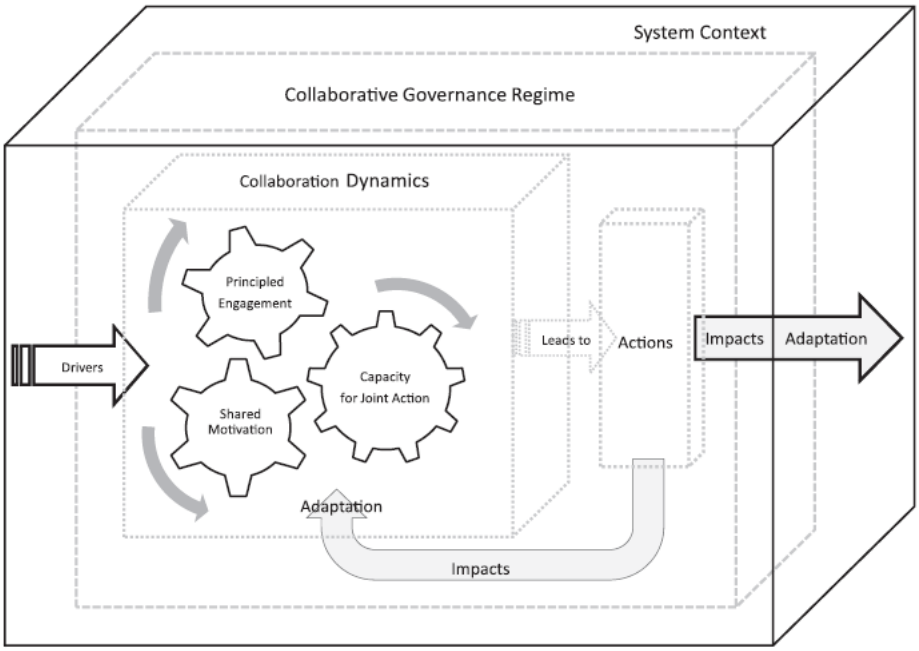

Figure 2 Integrative Framework for Collaborative Governance (Emerson et al., p.6, 2011)

The system context of collaborative governance in the context of urban area development is the economic, political, social and environmental context that generates opportunities and constraints. This has been explained in paragraph 2.1.1. This section elaborates on the collaboration dynamics of decision-making processes and the collaborative governance regime that represents the formal and informal arrangements among stakeholders.

2.2.2 Collaborative governance process

The collaborative governance process and the decision-making process are interconnected and mutually dependent. Collaborative governance can be seen as a specific approach to decision-making that emphasizes the involvement and collaboration of multiple stakeholders in a decision-making process that is deliberate and consensus-oriented.

Management on decision-making processes can be described on its two main components: coordination and control (Franzen et al., 2011). Coordination concerns linking activities and decisions of different actors to carry out a complete entity. Control concerns steering the process towards the desired result. A properly managed process will have consistent results with the values and characteristics determined beforehand. Therefore, steering towards the desired results is about determining what interventions are necessary to obtain the output of values and characteristics. Aligning determined values and characteristics with the desired results is part of feasibility studies, and steering on feasibility is part of the decision-making process.

Decisions are made at different organisational levels. Eisenfuhr's (2011) definition of decision-making is: "Decision making is a process of making a choice from a number of alternatives to achieve a desired result." First, it is important that decision making involves choosing from a number of alternatives. Second, the decision-making process is more than choosing the final alternative because the arguments to that alternative are equally important. Finally, the alternative should lead to the desired outcome of the decision making process. The process typically involves several stages, including problem identification, gathering information, generating alternatives, evaluating alternatives, making a choice, and implementing and monitoring the chosen solution. The decision-making process can be simple or complex depending on the nature of the problem being addressed and the number of people involved in making the decision (Teisman, 2000). The decision-making process in urban area development is often complex due to the complexity of its context and the various stakeholders and interests in the project.

Understanding the decision-making process is important because it can help individuals and organizations make better decisions by providing a structured approach to problem-solving. By following a systematic process for decision making, individuals can ensure that they have considered all relevant factors and have chosen the best possible course of action given their goals and constraints. Administrative decision making is presumed to be rational. This means that administrators can make the best decision because they are certain of their alternatives, consequences, decision criteria, and decision-making processes (Towler, 2010). The relational model in Figure 3 shows that the decision-making process can be broken down into six steps (Shoenfeld, 2011).

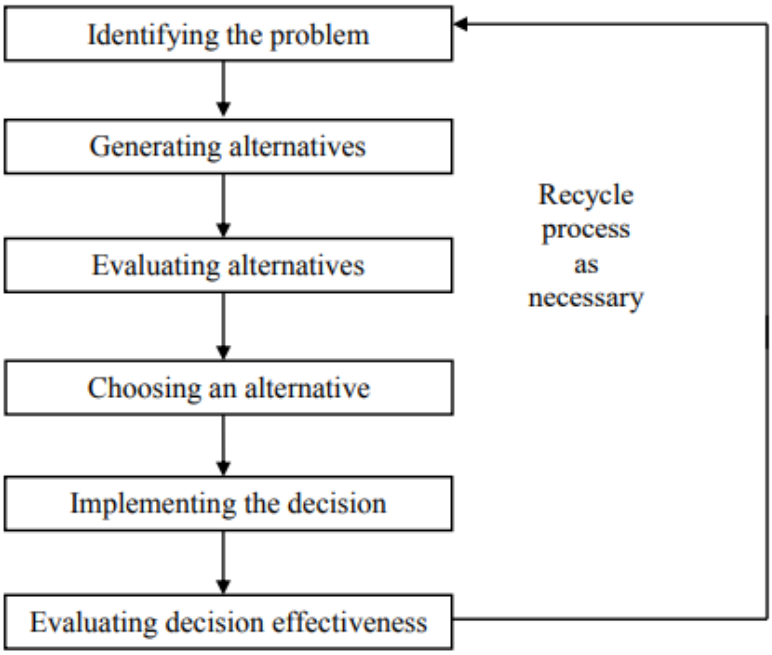

Figure 3 The decision-making process (Shoenfield, 2011)

It is important to notice that decision makers are limited in their ability to process information needed to make optimal decisions. Therefore, decision makers are restricted to finding solutions that are less than optimal. This is in contrast to the rational model of decision making, which characterizes decision makers as completely rational and searching through perfect information to make optimal decisions (Lunenburg, 2010).

Teisman (2000) suggests three conceptual models for research into decision-making processes that can be used to generate useful insights for understanding complexity: the phase model, the stream model, and the rounds model, see Figure 4. The phase model focuses on decisions taken by a focal actor targeting a specific problem. The stream model focuses on the coincidental links between problems, solutions and actors. The rounds model focuses on the interaction between various decisions taken by different actors.

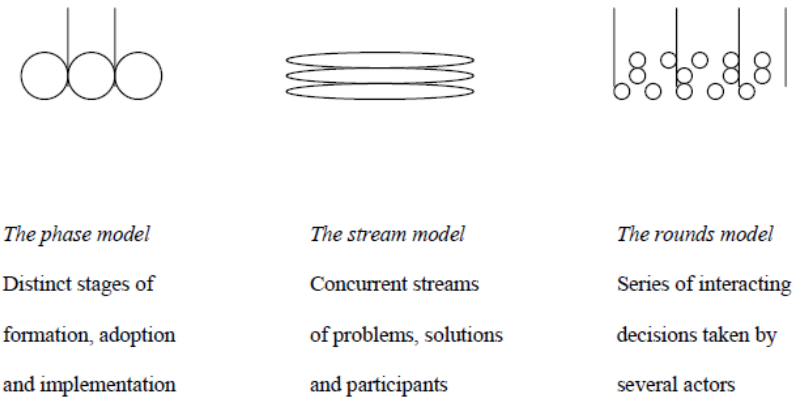

Figure 4 Three models for the analysis of decision-making processes (Teisman, 2000)

In complex urban area development that are carried out in types of collaborative governance, decision making is focused on collaboration and is consensus-oriented. Therefore, the interaction between the different actors in the decision-making process contains their problems and solutions. The rounds model assumes that several actors introduce combinations of problems and solutions, and create progress through interaction. In other words, decision making is seen as a dynamic process that involves multiple actors interacting with each other to generate solutions to problems. In the context of urban area development, collaborative governance provides a framework and process through which stakeholders engage in collective decision making. Decision-makers in collaborative governance acknowledge that they are limited in their ability to make optimal decisions but identify with shared goals and enable themselves to collectively shape decisions that reflect a broader range of interests and values, increasing the feasibility and effectiveness of outcomes.

2.2.2.1 Feasibility as part of decision-making processes

As Adams and Tiesdell (2012) state, feasibility is a problem-solving activity. Dey (2001) shows that feasibility is an analysis process and argues that problems can be resolved by incorporating the feasibility analyses and impact assessments into an integrated framework with the active involvement of all the stakeholders. The rounds model in Figure 5 takes into account the complexity of decision-making processes by acknowledging that multiple actors with different perspectives and interests are involved in generating solutions to problems (Teisman, 2000).

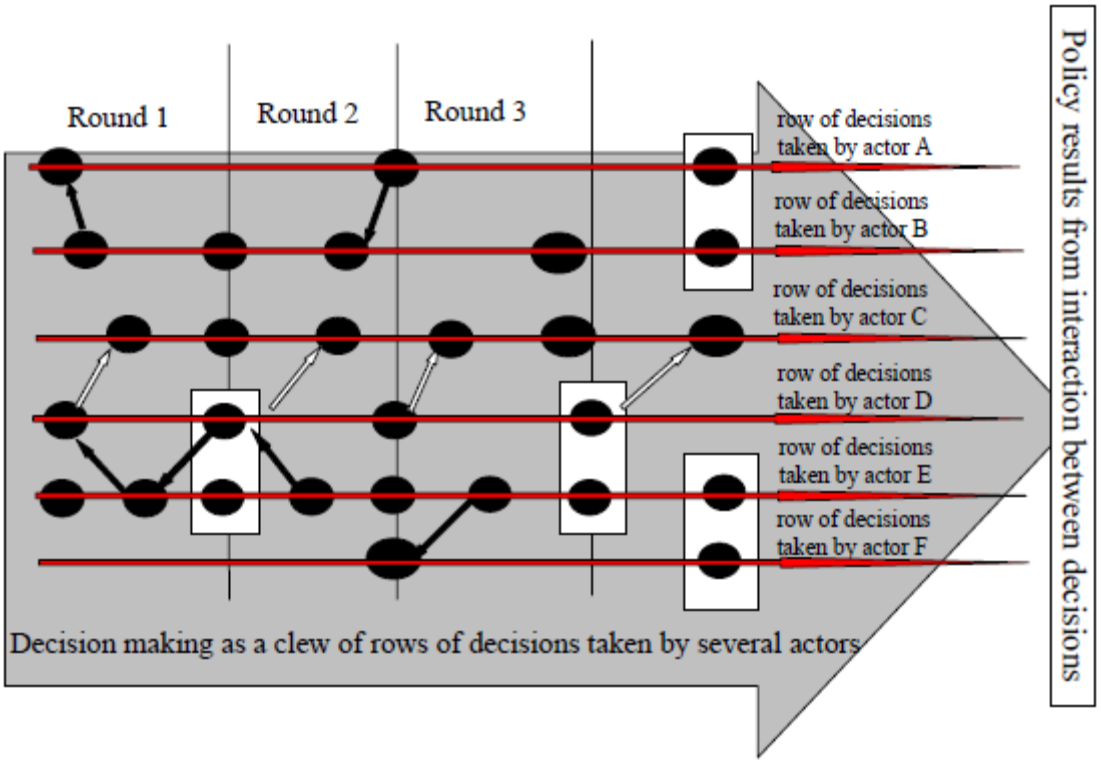

Figure 5 The concept of decision-making used in the rounds model (Teisman, p. 9, 2000)

The rounds model can be applied to empirical research focusing on governance processes, as it offers a way to reconstruct a basically unlimited complexity of events that can be combined into a decision-making

process (Teisman, 2000). This provides researchers with additional, more detailed insights into these processes, thereby creating a basis for more management theories about networks.

2.2.3 Collaborative governance agreements

The complexity and long-term process of urban area development have resulted in relational partnering that aggregates knowledge and experience in collaborations based on accountability and trust. Doloi (2009) has identified three factors that positively impact collaboration in the context of relational partnering success: communication, trust and confidence, and joint risk-management. These factors were also identified in the model of collaborative governance by Ansell and Gash (2007). They substantiate that public-private partnerships and collaborative governance are occasionally used interchangeably to describe the same thing.

Public-private partnerships require collaboration, although their objective is frequently coordination, linking activities and decisions of different actors to carry out a complete entity (Franzen et al., 2011), rather than general consensus. This collaboration demands higher standards of accountability associated with feasibility, generating greater levels of trust between actors. According to Sagalyn (2007), successful public-private partnerships have three characteristics:

1. partners work cooperatively because their interests are aligned;
2. formal contracts specify the conditions under which they share risk and responsibility for a mutually beneficial financial and social outcome;
3. business arrangements persist even after the project is finished and operating.

Unlike partnerships where public officials provide infrastructure or money to enable a private project, or where private developers provide social facilities, public-private partnerships ask for joint ownership. Therefore, stakeholders' level of commitment to collaborate is crucial to the success or failure of the project.

The incentive to participate largely explains whether collaborative governance can be successful. Starting conditions determine the basic level of trust, conflict, and social capital that will either be assets or liabilities during collaboration (Doloi, 2009). This encompasses the capacity, organization, and resources to participate on equal term with other stakeholders. Institutional design establishes the fundamental parameters for how collaboration occurs, crucial for a legitimate procedure of protocols and ground rules for collaboration. Additionally, leadership offers crucial facilitation and mediation for the collaborative governance process.

2.2.3.1 Trust in collaborative governance

Trust is considered one of the critical factors influencing the effectiveness of types of collaborative governance, as it enables effective communication and joint risk-management. Collaborative problem-solving and joint decision-making in collaborative governance processes contribute to trust-building in relational partnerships (Doloi, 2009). When stakeholders actively participate in shaping decisions and solutions, their sense of ownership and commitment to the partnership increases. This involvement encourages shared responsibility and recognition, strengthening the overall trust among the stakeholders.

In the context of urban area development, joint risk-management can generate trust in collaborative governance by providing financial guarantees. Financial guarantees serve as a mechanism to mitigate and manage risks, ensuring that the participating parties have the necessary resources to fulfil their commitments and address potential financial challenges. By offering financial guarantees, partners demonstrate their commitment to the partnership and their ability to fulfil their financial obligations that implies confidence and trust among the stakeholders. These guarantees provide assurance that risks or financial setbacks will be mitigated by the availability of necessary financial resource, and ensure the continuity of the collaborative entity.

2.3 Feasibility in the context of urban area development

To evaluate the feasibility of urban area development, the viability of the project must be evaluated in regard to a number of different factors. In the field of urban area development, feasibility studies are commonly conducted to assess the project's viability. These studies provide decision-makers with useful information by giving them a systematic evaluation of the project's feasibility. Therefore, feasibility analyses are crucial in the decision-making process.

2.3.1 Feasibility in urban area development

A feasibility analysis is an efficient analytical method for evaluating investments considering various perspectives, such as economic, political, social and demographic, technological, legal and environmental. According to Dey (2001), feasibility studies consider multiple analyses:

- Market and demand analysis
- Technical analysis
- Economic and financial analysis
- Impact assessment: environment and social analysis

Feasibility in urban area development refers to the assessment of the viability of a proposed project or development initiative within an urban context as explained in paragraph 2.1.1. It involves a comprehensive analysis of various factors, including economic, social, technical and environmental aspects, to determine the potential success and sustainability of the project (Adams & Tiesdell, 2012).

- **Economic feasibility**: focuses on evaluating the financial viability of the project. It involves analysing the projected costs, revenues, and potential economic benefits of the development. This assessment considers factors such as market demand, cost-effectiveness, funding sources, and potential return on investment to determine if the project is financially feasible.
- **Social feasibility**: examines the project's compatibility with the social and cultural fabric of the urban community. It considers aspects such as social acceptance, community needs, inclusivity, and the potential social impacts of the development. This assessment takes into account stakeholder engagement, public participation, and potential social benefits or disbenefits associated with the project.
- **Technical feasibility**: examines the project's technical requirements and considerations, such as land availability, infrastructure needs, and engineering constraints. It assesses whether the proposed project can be successfully implemented from a technical standpoint.
- **Environmental feasibility**: assesses the project's impact on the environment, including its potential effects on natural resources, ecosystems, and climate. It evaluates the project's alignment with environmental regulations and sustainability goals, addressing issues such as pollution, resource depletion, and ecological conservation.

Feasibility studies in urban area development provide decision-makers with critical insights into the project's strengths, weaknesses, opportunities, and challenges (Liu, 2017). The findings of these studies

provide input for the decision-making process, enabling stakeholders to make informed decisions regarding the status of the project. By assessing the feasibility of proposed projects comprehensively, actors in collaborative governance can strive towards sustainable and effective outcomes of urban area development.

2.3.2 Focus on financial feasibility in urban area development

Pursuing social aspirations and sustainable objectives is an essential goal in transforming urban areas into (new) residential and work places. However, this requires strategic decisions on how to finance those ambitions. One of the crucial requirements for realising urban area development is organising money (Heurkens et al., 2020). Understanding the financial opportunities and risks, as well as the crucial factors that parties must take into account when financing area development, is essential for these considerations. An integral business case of urban area development includes the costs and revenues within the land exploitation. In general, the expected and predicted revenues of land development should cover the costs of land exploitation through allocating land at market conditions. Integral urban area development is thus a combination of land exploitation and land development (real estate exploitation) in which market and public sector know-how of spatial and functional quality come together in the business case. Even though the land exploitation and real estate exploitation are separate entities, they must be aligned with each other.

2.3.2.1 What is financial feasibility?

Financial feasibility is defined by Parli (p.1, 2001) as "any physically possible and legal use of vacant land or land as though vacant that produces a positive return to the land after considering risks and all costs to create and maintain the use; any use that results in a positive land value." Parli underlines that this definition can be misunderstood to mean that the land use must provide an immediate positive cash flow in order to be accepted as financially feasible. This extreme precludes the conclusion that the land use has no potential of ever producing a positive cash flow.

The four phases of urban area development have shown that initially every project that gets through the initiative phase has been qualified as financially feasible. This does not evidently mean that the project will generate a positive cash flow throughout the entire project's process. As Franzen et al. (2011) points out, the progression of phases is more volatile than first imagined in a successive initiative phase. Ambitions may change throughout the project, whether or not as a result of political changes or change of involved parties, all of which can force a project to completely restart. This pressures the potential of producing a positive cash flow and questions the financial feasibility of the project. Therefore, Parli (2001) rightfully raises the question of "What is the appropriate way to determine financial feasibility?".

Actors in public-private partnerships manage the financial feasibility (Liu, 2017) in urban area development through various strategies and instruments. Some of the important strategies and instruments are:

- **Risk management**: actors in public-private partnerships try to ensure the financial feasibility of urban area development by identifying, assessing and managing risks. Risk analyses and indication of a risk reserve budget that should be included as financial buffer.

- **Financial models**: actors in collaborative governance use financial models to calculate and understand the financial feasibility of an urban area development project. These models make it possible to predict the costs and revenues of a project and simulate scenarios. This allows for better management of the financial feasibility of a project.

- **Financing and interest rates**: urban area development can also be managed for financial feasibility by applying different financing models and interest rates. This can be done by financing from banks or by attracting investors. This makes it possible to spread financing risks and increase the financial feasibility of a project.

2.3.2.2 Risk-management in urban area development

Risk-management plays a crucial role in assessing the financial feasibility of urban area development projects (Willumsen, 2019). It involves identifying, assessing, and prioritizing risks that may affect a project's objectives, and provides actors with the knowledge to make informed decisions and safeguard the financial feasibility of the project. The risks may include potential threats to the project's timeline, budget, quality, safety, or other aspects and actors can implement strategies to mitigate or manage those risks (Liu, 2017). Key aspects of risk management in financial feasibility assessments include:

- **risk identification** using a comprehensive examination of potential risks, such as market risks, regulatory risks, land development risks, construction risks, and financial risks;
- **risk analysis and quantification** using quantitative methods to assess the potential impact and likelihood of identified risks, such as a sensitivity analysis, scenario analysis, and Monte Carlo simulation to evaluate the impact on financial outcomes;
- **risk mitigation strategies** to minimize the negative impact of identified risks, such as contractual agreements, diversification of investments and revenue streams and project design (area phasing).

It is important to note that the accuracy of risk assessments is highly dependent on the input on the parameters. This effects the potential impact and likelihood of identified risks.

2.3.2.3 Financial models in urban area development

Financial models are instruments to assess the financial feasibility of urban area development projects. These models provide a structured framework for estimating costs, revenues and cash flows to determine the project's financial performance and viability of the business case (Heurkens et al., 2020). Key aspects of financial models in financial feasibility assessment include:

- costs including land acquisition, land development, infrastructure development, operational expenses and financing costs are estimated to assess potential cost overruns and evaluate the financial feasibility of the project;
- revues considering factors such as land sale (related to market demand), (temporary) rental incomes and revenues from selling demolition materials;

- cash flow analysis involves assessing the timing of cash inflows and outflows throughout the project. Such financial models enable actors to evaluate the financial feasibility by assessing timing of revenue inflow, liquidity and debt obligations.

In complex projects, a strong business case must be developed to ascertain the financial feasibility of the urban area development by assessing costs, revenues and cash flows. The GREX-VEX model is a widely acknowledged land and property calculation that links the eventual land sale to the recovery costs of realised real estate (Heurkens et al., 2020). This calculation is a discounted cashflow that indicates the Net Present Value (NPV) of the proposed urban area development.

2.3.2.3.1 Net Present Value as financial model for feasibility in urban area development

In the context of urban area development, the NPV is used to assess the financial feasibility by comparing the present value of expected cash inflows and outflows associated with the project. A positive NPV indicates that the project is expected to generate more cash inflows than outflows over its lifespan, suggesting that the investment is financially feasible and can potentially generate returns. According to Remer and Nieto (1995), maximizing a project's NPV will result in the greatest efficiency and, consequently, greater profitability. According to Park (2002) the decision rule for NPV is:

If NPV > 0, accept the investment;

If NPV = 0, remain indifferent to the investment;

If NPV < 0, reject the investment.

The NPV serves as a valuable tool in assessing the financial feasibility of urban area development projects. It helps decision-makers evaluate the potential viability and profitability of investments by considering the time value of money and the net value generated by the project. However, it is important to notice that the NPV does not consider risk factors. A comprehensive analysis of risk factors should be considered together with the NPV doe make well-informed decision about the financial feasibility of urban area development.

2.3.2.4 Financing and interest rates in urban area development

Financing agreements including terms, conditions and financing resources play a significant role in assessing the financial feasibility of urban area development projects. Key aspects of financing agreements in financial feasibility assessment include:

- the capital structure of financing agreements includes equity and debt financing which affects financial risks and cost of capital;
- loan-to-value or debt-to-equity ratios determine minimum revenue thresholds, profitability targets and repayment schedules to assess the financial commitment of the project and resilience to financial setbacks.

It is not unusual to share financing agreements in urban area development. These projects always involve some type of public-public and public-private co-financing. Investments in public interests such as

infrastructure, public space and other public facilities are needed at the level of the urban area development (Heurkens et al., 2020).

2.3.3 The importance of equity in urban area development

Equity capital plays an important role in the financial feasibility of an urban area development. Equity represents the capital contributed by a company and is an important indicator of a project's financial stability and resilience because it provides a buffer against financial risks and can be used to meet financial obligations. In urban area development, equity can be used to increase the financial feasibility because higher equity means less reliance on external financing, reducing the risk of bankruptcy or financial instability (Verheul & Heurkens, 2021). If a risk item falls within equity capital, it means that sufficient financial resources are available to deal with the consequences of this risk. However, equity is not the only factor that determines the financial feasibility of urban area development. Other (risk) factors, such as project costs and revenues, capital structures and macroeconomic conditions, also play a significant role.

2.4 Conclusion on theoretical findings

This chapter has provided a comprehensive analysis of literature studies on the research concepts collaborative governance and feasibility in the context of urban area development. It provides a theoretical perspective on sub question 1: *What is feasibility in the context of urban area development?*

2.4.1 SQ1: What is feasibility in the context of urban area development?

The examination of feasibility in the context of urban area development revealed that it encompasses the practicality and viability of proposed initiatives in terms of financially effective outcomes and the ability to attract investments. While financial models are crucial for assessing the financial feasibility at the start of a project, it is concluded that a more comprehensive approach is required as the collaborative governance process progresses. This comprehensive approach incorporates risk analyses that assess the feasibility on important risk factors that impact the financial viability of the urban area development. This hypothesis suggests that financial models are not sufficient for assessing feasibility, but a thorough evaluation of risks is necessary to make informed decisions in collaborative governance processes and ensure the long-term financial feasibility of urban area development. Highlighting the importance of integrating risk analysis into the assessment of feasibility in the collaborative governance process ensures the long-term financial sustainability of urban area development initiatives.

2.4.2 Additions from theoretical research to the research concepts and conceptual model

The theoretical research in this chapter has provided further insights into the research concepts. By extending the conceptual model through theoretical research (see Figure 6Figure 1), this study aims to deepen the understanding of the relationship between feasibility, risk management, and collaborative governance in the context of urban area development.

Feasibility and risk management are key concepts in the context of urban area development, and their close relationship is crucial for successful project outcomes. The main research question of this study focuses on understanding how public and private parties in collaborative governance steer on feasibility in the context of urban area development. To provide a comprehensive analysis, four sub questions are addressed, each shedding light on different aspects of the research topic.

The concept of feasibility in the context of urban area development refers to the assessment of whether a proposed project is viable and can be successfully completed. It encompasses various factors, such as financial viability, environmental sustainability, and social acceptance. This is equivalent to the four dimensions of the context of urban area development: economic, political, social and environmental. Therefore, feasibility is closely intertwined with risk management, as identifying and mitigating risks is crucial to ensure the project's success.

Collaborative governance plays a significant role in steering towards feasibility and managing risks in the context of urban area development. The context of urban area development adds complexity due to the dynamic and multifaceted character of urban area development. This necessitates a comprehensive understanding of the economic, political, social and environmental factors that influence feasibility and risk

management strategies. Therefore, it involves the collaboration and coordination of multiple stakeholders, and ask parties to engage in a collaborative governance process. This collaborative approach allows for the pooling of resources, expertise, and decision-making, leading to more effective risk management and improved assessment of feasibility.

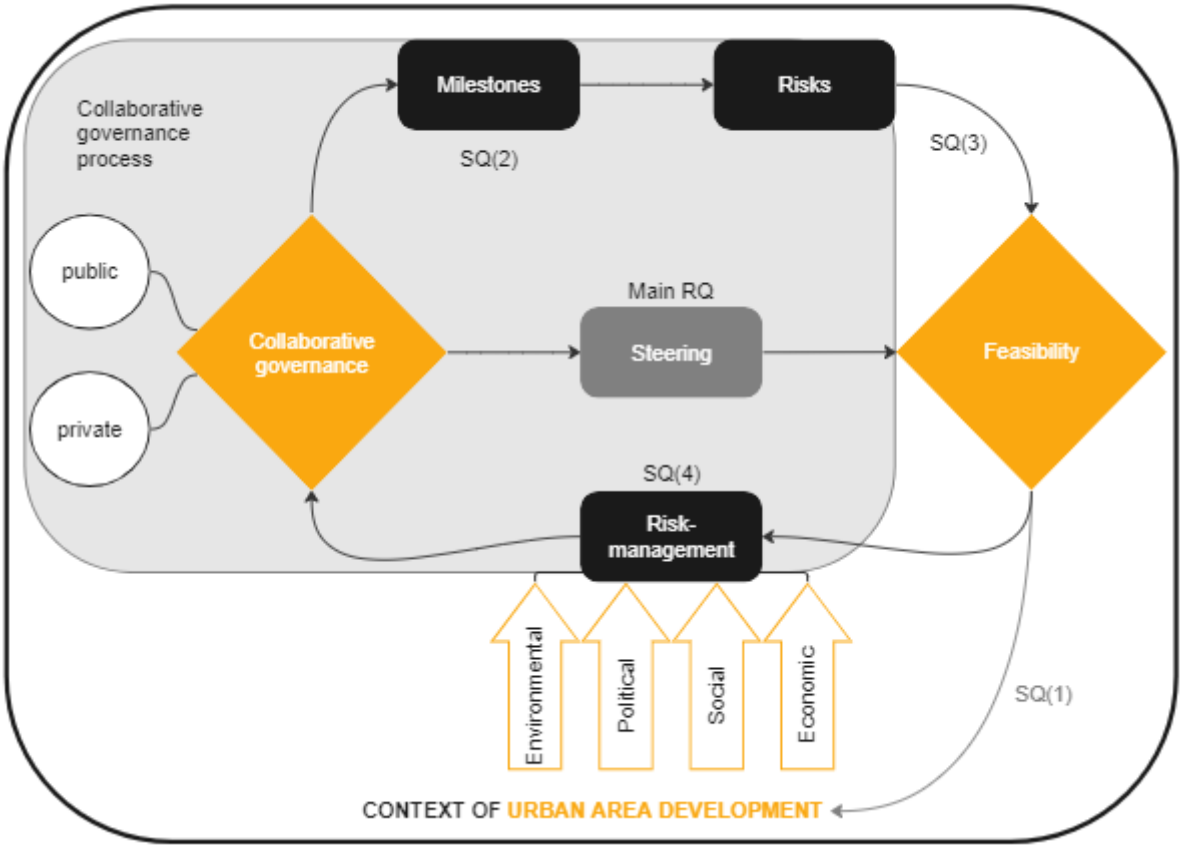

Figure 6 Research concepts and conceptual model (Own illustration)

3 Methodology

This thesis has adopted an exploratory research to investigate collaborative governance and feasibility in the context of urban area development. The study has gathered qualitative data by focussing on case study empirical data as well as a literature study. The combination of these methods allows for a comprehensive understanding of the research problem, exploration of key concepts, and qualitative data. This chapter explains the methodology of the research questions in further detail, explaining how each research question was answered and positioned within the research. It also provides information about data collection, data analysis, data plan and validity of the research findings.

3.1 Research design

The first part of the research design in Chapter 2 has established a description of characteristics about the research concepts related to collaborative governance and feasibility in urban area development. The problem statement of the research is:

"Collaborative governance approaches have emerged as a response to the challenges associated with urban area development and are often related to successful projects. However, there is a need to explore how public and private actors in collaborative governance effectively steer on feasibility in the context of urban area development. The research problem in this study is centred around this understanding."

This research has provided practical know-how with the aim to gain deeper insight in how collaborative governance agreements generate feasible urban area development projects. It has provided a practical implementation on how actors in collaborative governance steer on feasibility. Figure 7 elaborates the sequence of methods assessed that answered the different sub questions.

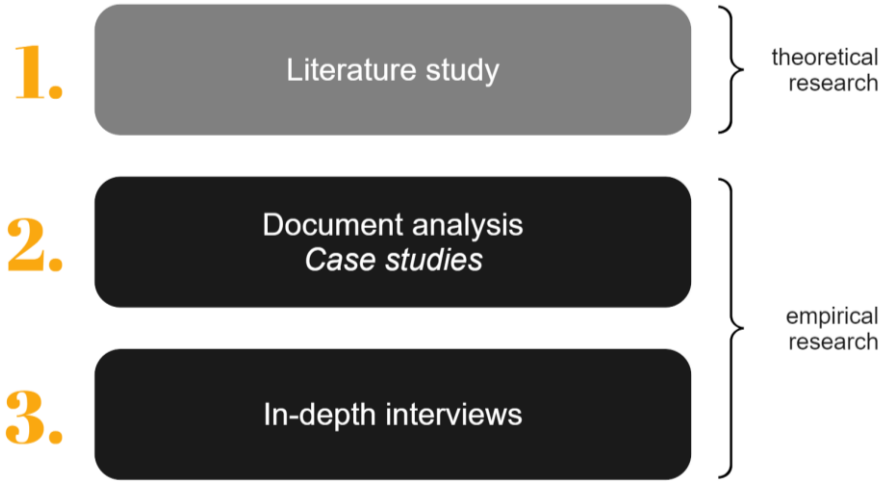

Figure 7 Research methods sequence (Own illustration)

3.1.1 Theoretical research

The theoretical research conducted a literature review in Chapter 2 and has established several key concepts that provide the theoretical framework for the study. These concepts include public and private actors in collaborative governance, collaborative governance process(es), risk-management, feasibility, and urban

area development. It provides a comprehensive understanding of these concepts, their interrelationships, and their significance in steering urban area development projects towards feasibility within collaborative governance agreement. Literature is obtained from search engines like Scopus, Springer and Google Scholar. To obtain relevant literature, different keywords and phrasing are used interchangeably, see Figure 8. The theoretical research provided a foundation for designing the research methodology, framing research questions, and interpreting the empirical findings, contributing to the theoretical knowledge in the field of urban development and collaborative governance. The interpretation and understanding of feasibility is researched in sub question 1: *What is feasibility in the context of urban area development?* The theoretical research has provided a hypothesis that was reflected upon in the empirical research.

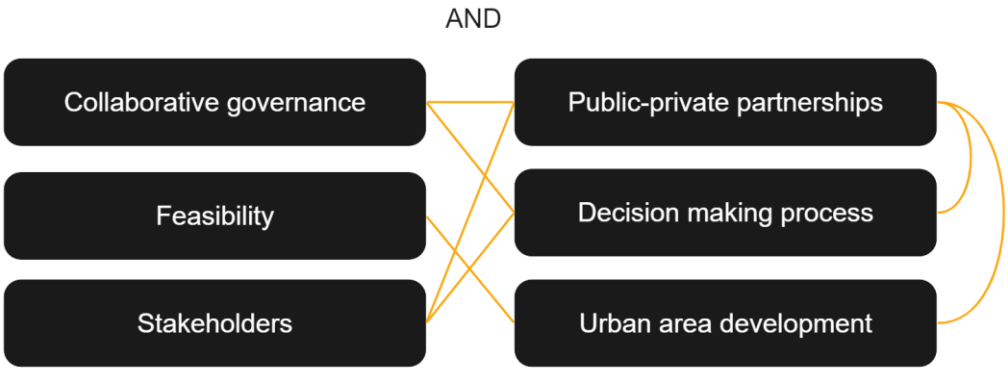

Figure 8 Keywords uses in search engines (Own illustration)

3.1.2 Research framework

The financial feasibility of urban area development has been researched as equivalent to the financial business case, the land exploitation model. This is indicated by a net present value (NPV) calculation in which the recovery of costs is related to the eventual land sale. However, both cost and revenue forecasts are based on assumptions in time and include uncertainties about costs, price of raw materials, sales price, construction period and productivity. Therefore, risk analysis indicate important risk factors that impact costs and revenues. The assessment of these parameters is linked to the assessment of feasibility. Lastly, risk management strategies are researched to indicate how risk factors these parameters are mitigated and managed. Figure 9 indicates the structure of the empirical research framework as supported by the findings of the theoretical research in Chapter 2.

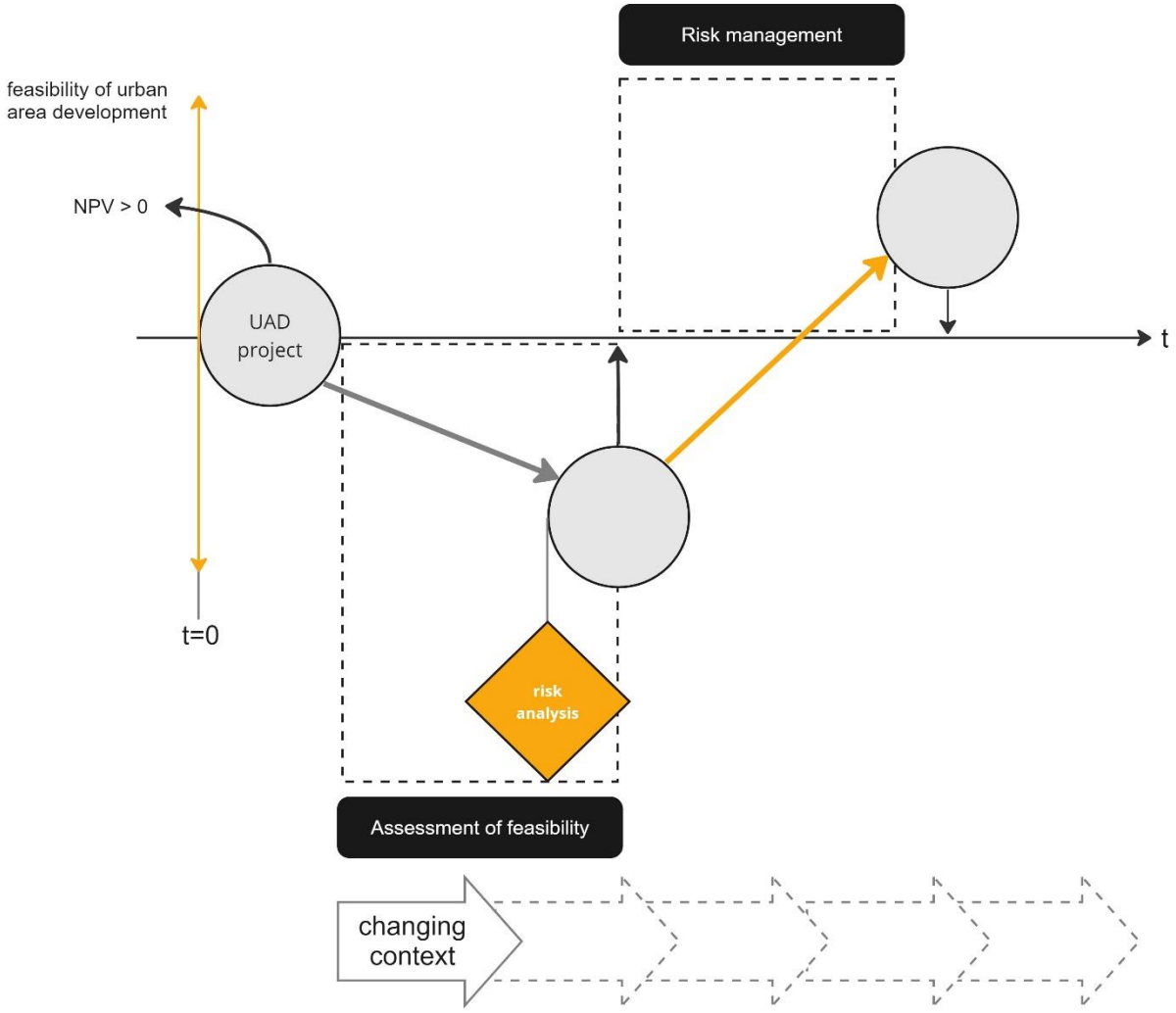

Figure 9 Research framework for empirical research (Own illustration)

3.1.3 Empirical research

The empirical research in this study encompasses two primary methods: document analysis from open databases and confidential documents, and in-depth interviews with relevant stakeholders. The empirical research that is reported concerns case studies. A case study is a research strategy that involves a deep understanding and examination of a social phenomenon in one or more research units (Braster, 2000). The social phenomenon that is researched in this thesis is feasibility in the context of urban area development. These methods are employed to gather qualitative data that provides insights into the research questions and supports the exploration of collaborative governance and feasibility in the context of urban area development.

3.1.4 Scope

The scope of this research is focused on examining collaborative governance and feasibility in the context urban area development, specifically within the framework financial feasibility and public-private partnerships. While acknowledging the multi-dimensional nature of feasibility, the focus of this study is specifically on the financial aspects and considerations in urban area development, such as risk management, financial models, and financing and interest rates. The research investigates the risk factors that influence financial feasibility in urban area development projects, considering economic factors, financial models, financing agreements, and the role of public and private actors. Also, the scope is limited to collaborative governance, which involves the partnership and collaboration between public and private entities in the context of urban area development. The research has focused on actor dynamics and their influence on financial feasibility within the collaborative governance processes of urban area development projects. It explores how collaborative governance mechanisms, such as public-private partnerships, influence financial feasibility, and how the involvement of various actors affects resource allocation, risk-sharing, and financial outcomes. By narrowing the research scope to financial feasibility in urban area development, the study aims to provide deeper insights into the financial dynamics and collaborative governance processes that influence feasibility in urban area development projects. The findings will contribute to understanding the challenges, opportunities, and best practices of collaborative governance mechanisms in achieving financial feasibility, with implications for policy, practice, and future research in the field of urban area development.

3.2 Case selection

The goal of case study research is to better understand the social phenomenon of feasibility in the context of urban area development and its underlying complexity. Therefore, thorough examination of the case is preferred rather than general statements. This corresponds with the research strategy of case studies (Bruil et al., 2004). The selection of the case studies is based on a theoretical substantive and pragmatic selection of available information. Initially, two case studies were selected, but due to the lack of commitment of one of the project companies, only one case study has been researched. However, the range of data and information was sufficient to provide valuable insights. This case study was selected on the following criteria:

- The project concerns an urban area development in The Netherlands.
- The urban area development is carried out in the form of public-private partnership.
- The urban area development has a multifunctional character: not only does it provide housing, but it also covers infrastructure, social facilities, and sustainable climate solutions.
- At least one phase of the urban area development is in construction or completed. This is necessary to provide sufficient information about milestones, events, and accompanied decision-making.
- The case provides a sufficient amount of information that can be collected for the document analysis.
- Possible connections that can be used for the in-depth interviewing with actors in the collaborative governance agreements.

3.2.1 Vroondaal – The Hague

Vroondaal is an urban area development of approximately 100 hectares in the former greenhouse area Madestein on the outskirts of The Hague. The project provides a maximum of 2.149 dwellings in four different sub area developments, see Figure 10. In 2008, the decision was taken to further develop the area in public-private partnership. This led to a joint-venture with project company between the municipality of The Hague and two market parties BPD and Synchroon, together referred to as OC Vroondaal (Metafoor, 2018).

Figure 10 Different sub areas of Vroondaal (Gemeente Den Haag, n.d.)

3.3 Data collection

The empirical research is supported by qualitative data derived from a case study. Data in this research is collected using two methods: content analysis of documents and in-depth interviewing (Blaikie & Priest, 2019). These methods are combined to answer the research questions according to the principle of triangulation (Carter et al., 2014).

3.3.1 Document analysis

The data consists of a diversity of documents: market research, meeting records, expert reports, maps, contracts, etc (Bruil et al., 2004). Also, secondary data sources like newspapers and articles have been consulted to review the primary data of the documents (Bryman, 2016). The data is treated qualitatively and has identified phenomena among which connections are established (Blakie & Priest, 2019). These phenomena refer to the agreements that actors in collaborative governance established to generate a successful business case, a feasible urban area development. Using these documents, a timeline of the urban area development has been put together, identifying milestones and events (concerning decision-making) that were crucial to risk management. This includes public and confidential information.

The first analysis consulted administrative documents in the public database of the municipality of The Hague. This database provided information on the project context and milestones in the decision making process of the Vroondaal (Madestein) project. Therefore, search criteria 'Madestein AND Vroondaal' were used and provided 656 results. They were organised by date and gone through very thoroughly, analysing the information in the documents until year 2011. This research provided a good overview of important and less important documents in the database. Therefore, the search criteria was extended with 'Voortgangsrapportage AND Madestein AND Vroondaal'. This provided 119 results. Again, these documents were organised by date. Useful data regarding the Vroondaal project and its process has been reported in Appendix I: Public documents.

The identified milestones in the public database have been used to indicate important milestones with regards to risk-management. Therefore, confidential land exploitation reports have provided information on risk factors, risk management and the financial feasibility. These reports are included in Appendix II: Land exploitation reports and will not be available to the public.

3.3.2 In-depth interviews

The second method of gathering qualitative data for this research is through in-depth interviews. Semi structured interviews have been conducted, as this method allows main topics to be covered in each interview to allow for comparison, but it also allows for more in-depth analysis of each interviewee's experiences that may not have been covered by existing literature. This semi-structured interview technique provides as a guide, but it also allows for freedom to make sure that the participant's entire experience is conveyed (Knox & Burkard, 2009). The technique enables respondents to discuss what they believe to be essential (Morris, 2015).

Most of the interviews have been conducted face-to-face as this was the preferred strategy, and some were online. The COVID-19 pandemic had shown that meeting online also works, so this was offered as an option as well. When the interview was conducted face-to-face, the interviewee could express their preferred location. The purpose of this was to make the interviewee feel at ease and free to communicate. As a result, stated preferences and underlying reasoning were identified, and this supported truthful answering. The interview occurred in their place of employment and did not take up more than an hour and a half. In this manner, we had enough time to introduce ourselves, and get into greater detail about the subjects. After the interviews were conducted, a report of the interview has been sent to the respondents for validation purposes.

3.3.2.1 Respondents

The respondent group for the in-depth interviews consisted of actors that were involved in the case study. This group focusses specifically on public parties and private developers who entered collaborative governance agreements within urban area development (Sagalyn, 2007). Also, actors that were not directly involved in the agreements but could influence other actors in their decision making process were interviewed as well. This was according to the rounds-model for decision making by Teisman (2000). Therefore, the respondent group consisted of employees from the municipality of The Hague, development companies BPD and Synchroon, a bank in its role as financier, employees of GEM Vroondaal, and a controlling body of the municipality. Due to the scope and limited time of this research, most important actors have been interviewed which has resulted in a sample size of n=9. This sample size is supported by Dworkin (2012) who has set a guideline of 5 to 50 interviewees for sufficient qualitative research. The network of the department of Urban Area Development at TU Delft and connections of Fakton were used to select and approach interviewees. The selection criteria for interviewees were as follows:

- employee is contracted in the public-private partnership of the urban area development or has a direct impact on the decision making process;
- work experience in the specific case – the urban area development (as long as possible);
- involvement and authority in the decision making process.

For the interviewees to take into account the questions themselves, an interview protocol was established prior to the interviews (Knox & Burkard, 2009), see Appendix IV: Interview protocol.

3.4 Data analysis

As indicated before, qualitative data in this research is collected using multiple methods: content analysis of documents and in-depth interviewing (Blaikie & Priest, 2019). Therefore, data gathering, and data analysis has been conducted in multiple steps. First, the identified phenomena of the document analysis have been grouped using predefined categories: milestones and risk management. The concepts in the literature study have supported the identification of milestones and events concerned with decision-making from the document analysis. These results provided input for the interview protocol and interview questions. Next, the interviews have been conducted and recorded in Microsoft Teams. Microsoft Teams provides a recording and raw transcript, which has been revised and checked. Computer Assisted Qualitative Data Analysis Software has been used in Microsoft Word to import the transcripts and case notes.

3.4.1 Document analysis

The document analysis has been conducted in multiple steps. First, with the data from the public database, milestones with regards to risk management could be identified. The literature study had provided an overview of risk categories that supported identifying milestones. Secondly, land exploitation reports (confidential data) were consulted to review the financial feasibility of the urban area development at identified milestones from the first document analysis. The financial feasibility in these reports was analysed along with the risk assessments on financial feasibility. Important parameters have been identified and grouped using risk categories.

3.4.2 In-depth interviews

Interview transcripts are coded according to predefined categories using open and axial coding. According to Dey (1993), the method for coding is formulated as a circular or spiral process involving three activities: describing, classifying, and connecting. Descriptions should be thorough including the context of the action, intentions of the social actors and the processes through which social action and interaction are sustained and/or changed (Blakie & Priest, 2019). Classification has been achieved by creating categories, allocating the data to these categories by highlighting with different colours, and new categories have been added to comprehensively classify the data. After themes were determined by open coding, categories were be improved. The interview data has been analysed using the following structure:

a. Analyse milestones based on years mentioned.
b. Analyse risks associated with milestones.
c. Analyse resources belonging to risk management.
d. Analysing interests and arguments belonging to risk management.
e. Analyse agreements belonging to risk management.

Axial coding has identified relationships and links. This concerns the last part where connections in data have discovered regularities, variations, and singularities in the data to construct theories on the research questions (Blakie & Priest, 2019). The results are used in the empirical research of the case study. The information from the document analysis can thus be verified and supplemented with interesting insights

and additions. The data has been organized into five main categories: milestones, risk management, risks, feasibility assessment and collaborative governance agreements.

The resulting analysis uses quotation from the interviewees to enlighten recurring themes, allowing respondents to speak for themselves. Therefore, pseudonymization has been used as additional privacy precaution. Each participant will be given a letter in accordance with their informed consent form. The research will not mention participant names throughout data collection or analysis. By taking this precaution, the participants' privacy about their opinions on the subjects will be guaranteed and the data will not be linked to them.

3.5 Data plan

The aim for this research is to share knowledge and provide deeper insight in how collaborative governance agreements generate feasibility in the context of urban area development. This applies not only for the outcomes of the research but also for the data. Therefore, the FAIR Guiding Principle (Wilkinson et al., 2016) has been applied and a data plan was developed, see Appendix V: Data Management Plan. FAIR meets the principles of Findability, Accessibility, Interoperability, and Reusability. First, the data needs to be findable for both researchers as computers. Using clear file names contributes the machine-readable metadata for automatic search of datasets and services. During the data processing, the data was written with metadata. Also, the repository of Delft University of Technology provides findability and accessibility of the research for others. Furthermore, this research is written in English which means that the data can easily be integrated by other data and used by machines. This benefits the interoperability of the research. After all the data has been processed an anonymized, the data was stored on a permanent location. This concerned the Project Storage drive of the university. Only final research results and anonymized data sets have been shared through this drive, so no personal data was shared publicly. This procedure concerns the last principle of FAIR, reusability, so the data can be used for further or new research.

3.6 Validity of the research findings

The validity and trustworthiness of qualitative research findings is questioned by practitioners (Shenton, 2004). Therefore, quality criteria for qualitative research are essential to persuade the validity of the research findings. Marshall et al. (2021) consider four criteria to the trustworthiness of qualitative research: credibility, transferability, dependability, and confirmability. Several measures were taken to ensure the validity of the research according to these four criteria. First, to ensure that only participants who are willing to engage in the data collection are included, respondents could withdraw from participation at any time and were made aware of this. Secondly, their transcripts were shared and asked for reviewing so no statements are misunderstood or wrongly interpreted. Further, a thorough explanation of the social phenomenon that is researched has been provided to increase credibility and transferability. This also applies for the data collection and analysis. An important annotation is the time framework of this research. With limited time and resources, the dependability and confirmability of the research findings can be questioned. This is due to the fact that only one case study could provide the necessary data for the document analysis.

3.7 Ethical considerations

The qualitative nature of this research involves data from ongoing projects and participants. The sensitive nature of this data demanded careful handling regarding the possible future implications it will have, see Appendix VI: Human Research Ethics. Therefore, four principles for ethical consideration (Diener and Crandall, 1978) are applied:

1. No harm of any kind should ever be done to research participants.
2. The respondents' full consent should be sought before the study.
3. It is essential to respect research participants' privacy.
4. It is important to avoid misleading or exaggerating the research's goals and objectives.

Furthermore, it is important to ensure integrity and trust among research participants. It is your obligation to build a professional and trustworthy relationship with the participants. Their vision and opinion about the research concepts has been taken seriously, as they also shared their critical perspectives for research purposes. Participants were aware that they had the right to withdraw from the research any time or decline to answer questions, without consequences for them or other participants. Additionally, participants are entitled to privacy, so anonymity and confidentiality have been maintained throughout the research. This means that the participants shall be anonymous and aware of who controls the data, what data they supply, how it will be used, and for how long it will be kept. To safeguard participants from any risk and harm, they have given their formal consent, see Appendix VII: Informed Consent Form.

4 Empirical perspective on feasibility in the context of urban area development

This chapter provides a practical implementation of feasibility in the context of the urban area development of Vroondaal (The Hague). First, public records from the municipal database have provided an introduction to the background and organisation of the case. An overview of the consulted reports is attached in Appendix I: Public documents. Considerations in the municipal reports have indicated important milestones in the project with regards to risk-management. These milestones served as a starting point to indicate the relevant land exploitation reports for further examination on the feasibility of urban area development. This concerns the second part of the document analysis. Within the land exploitation reports, the NPV calculation indicates the financial feasibility of the case. The result of the calculation has been questioned in relation to the uncertainty in the parameters and range of impact on the NPV. This is described in paragraph 4.1.4. Finally, in-depth interviews have provided further insight into important milestones in the decision making process and how the risk parameters have been mitigated within the public-private partnership.

4.1 Case study – Document analysis

The case study in this research concerns an expansion location of a former greenhouse area close to the centre of The Hague: Vroondaal. At the time of this study, the urban area development is in the realisation phase: three of the four subareas have been realized. For the last subarea, the land has yet to be allocated. The municipality and two market parties have jointly organized the land exploitation of the area, resulting in a land exploitation company or project company (GEM Vroondaal).

4.1.1 Context

The urban area development Vroondaal is located in the southwest of The Hague in the Madestein area, between The Hague, Poeldijk and Monster, see Figure 11. Vroondaal is part of the Westlandse Zoom convenant, in which municipalities The Hague and Westland, province of South Holland and the Haaglanden Region have made agreements about the development of the Westlandse Zoom area: a new residential and recreational area with a total amount of 350 hectares in the Hague and Westland region.

Figure 11 Location plan area Vroondaal with regards to the city of The Hague (Google Earth, 2023)

The city council of The Hague adopted the land use plan and land exploitation for project Madestein (now Vroondaal) in 2000. The development of this former greenhouse area (see Figure 12) was initially based on the expectation of a thriving real estate market, with a phased approach that assumed good marketability in the high-end luxury segment. Figure 13 shows the initial land use plan with spacious villa neighbourhood. In 2003, a partnership was formed between the VOF Madestein, consisting of Rabo Vastgoed BV and Johan Matser Projectontwikkeling BV (now BPD and Synchroon), and the municipality of The Hague. The goal of VOF Madestein and the municipality was to build approximately 970 homes, primarily villas. The partnership agreements specified that the project-based development of housing in the higher price segment would be limited to 20% of the distribution, with the remaining 80% being privately commissioned. The homes in the land use plan Madestein 2001 were all targeted towards the higher price segment, aiming to attract an internationally oriented demographic (Gemeente Den Haag, 2011a).

Figure 12 Madestein former greenhouse area (Gemeente Den Haag, 2001)

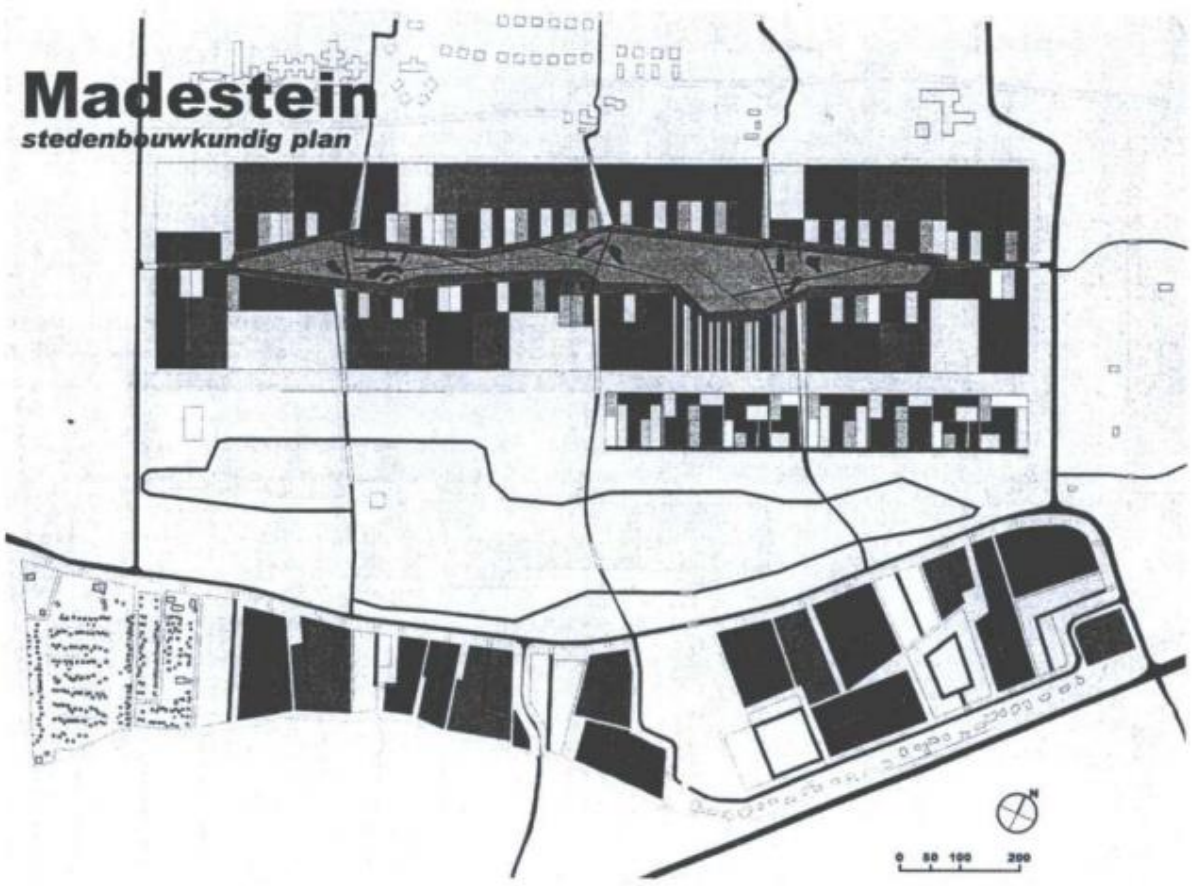

Figure 13 Land use plan Madestein 2001 (Gemeente Den Haag, 2001)

In 2008, this collaboration was intensified through a public-private partnership with joint project company in both land exploitation and real estate development, establishing two companies in which the municipality held a 50% stake, while the private parties held the other 50% (split evenly between them). These companies, collectively referred to as OC Vroondaal, were formed in 2010 to overcome conflicting interests on land sale and land price between the municipality and the private parties. However, due to the economic and financial crisis, the housing market experienced a severe downturn, resulting in a significant decline in plot sales for higher segment villas. By 2010, both the municipality and OC Vroondaal realized that plot sales were falling behind schedule, and the interest costs of investments were burdening the land exploitation. Continuing with the existing plans would lead to a substantial delay in the completion of Vroondaal, possibly extending the timeline from 2025 to 2045. Consequently, this delay would result in a growing deficit of approximately €40 million in land exploitation. Thus, maintaining the current policy was deemed untenable (Gemeente Den Haag, 2011d).

To address these challenges, GEM Vroondaal proposed a change of course with a new spatial planning document: 'Vroondaal Revisited'. This vision was presented to the municipality in 2011 for review and approval. Based on market research, Vroondaal Revisited concluded that the current housing market for the top segment was structurally too small to achieve the desired land sales rate. Although the study anticipated a housing market recovery from 2012, it projected that land sales in the current top segment would remain consistently low. Considering the changing market dynamics, GEM Vroondaal determined that adhering to

the existing setup was not feasible. Instead, they proposed a new urban design plan 'Aangenaam Haags' in 2012 and accelerated development by adjusting the land-use plan in 2014, increasing the share of project-based construction, and expanding the target group while maintaining the ambition for exclusive living in the high-segment with VON prices up to € 1.2 mln, but on a smaller scale. The new vision (see Figure 14) proposed to significantly stretch the program to the lower segments and a housing program up to approximately 2,150 housing units (Gemeente Den Haag, 2013b).

Figure 14 Housing program in Vroondaal Revisited (Gemeente Den Haag, 2013b)

4.1.2 Collaboration and responsibilities

The municipality, BPD and Synchroon have jointly organized the land exploitation of the area, resulting in a land exploitation company or project company (GEM Vroondaal), see Figure 15. The municipality has a 50% stake and the private parties have the other 50% (split evenly between them) of Vroondaal Beheer B.V. GEM Vroondaal C.V. is responsible for land exploitation and risk analyses, and land development for construction.

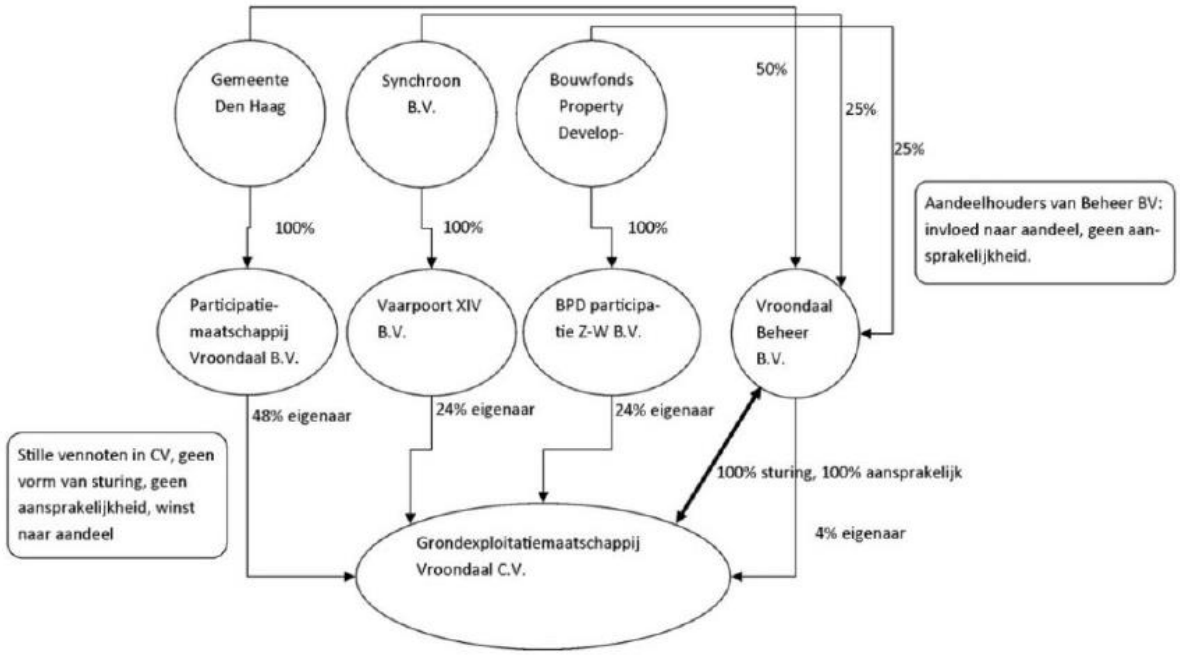

Figure 15 CV/BV of GEM Vroondaal (Gemeente Den Haag, p.67, 2016b)

The municipality is not only a participant in GEM Vroondaal, but also acts as a financier for the GEM. At the start of the joint-venture, the municipal council decided to provide the financing for the land development of the Vroondaal project of up to € 150 mln., including a flexible credit facility of € 20 mln. with the BNG bank (Bank Nederlandse Gemeenten). Because of lower plot sales, it became clear at the end of 2008 that the financing need would exceed € 150 mln. (Gemeente Den Haag, 2013). As a solution, parties have opted to only include fiscally developed land in the land exploitation company (GEM Vroondaal). The remaining land and associated costs initially stayed with the municipality and depending on the realisation and planning, are transferred to GEM Vroondaal at a later stage. The financing limit has been increased to € 160 mln. in 2013.

Part of the maximum financing is a guarantee on the credit facility of € 20 mln. with BNG bank. In its role as financier, the municipality runs the risk that the loan provided to GEM Vroondaal cannot be repaid in case of bankruptcy (Gemeente Den Haag, 2016a; Gemeente Den Haag, 2016b). This risk is hedged in several ways:

1. Under the Basel system, when a loan is outstanding a provision must be made for a (possible) default. Both private parties participating in GEM Vroondaal have fulfilled this guarantee by depositing €7.5 million with the Central Treasury of the municipality (Gemeente Den Haag, 2014).
2. In addition, the municipality has established pledge and mortgage rights on the land as security for the loan.

Vroondaal is a joint venture of the municipality of The Hague because there is both a managerial interest and a financial interest. The financial interest is expressed through its shareholding in Vroondaal Beheer B.V. and GEM Vroondaal C.V. and providing a loan and guarantee to GEM Vroondaal (Gemeente Den Haag,

2016b). This implies that the municipality has an administrative interest (control) and a financial interest and runs related risks. It is important to notice that the municipality represents multiple roles as owner, client and controller and therewith also represents private interests. The mingling of these roles and interests could conflict with the official representation of a public entity.

4.1.3 Milestones

An overview of significant milestones on risk-management of Vroondaal has been provided by research in the public database of the municipality of The Hague. When there was sufficient data available, significant aspects that impacted the feasibility are further explained.

4.1.3.1 Milestone 1: 2010 – Establishment of joint-venture project company GEM Vroondaal

In 2008, the public-private partnership (PPP) for the urban area development of Vroondaal was formally established. In March 2010, the PPP was organised in a joint-venture with project company consisting of a land exploitation company (GEM) and a real estate exploitation company (VEM), both organized as a CV/BV structure (Gemeente Den Haag, 2011a). The collaboration is based on a 50/50 arrangement between the Municipality of The Hague and market parties, specifically BPD and Synchroon.

Conflicting interests on land sale and land price between the municipality and the private parties was the main argument to consider a joint-venture as means of effectively managing and sharing risks associated with the urban area development, while allowing to pool resources, expertise, and financial investments. To support the project financially, the municipality provided loans and guarantees to GEM Vroondaal. As a safety measure, the market parties provided a bank guarantee of a totalling of €15 million to the Central Treasury of the municipality (Gemeente Den Haag, 2011a). Additionally, the municipality held first rights of mortgage and pledge on all acquired assets of GEM Vroondaal. To reduce the financing needs of GEM Vroondaal, undeveloped land earmarked for construction was included in the municipal land bank for taxation purposes. Land was made available to GEM Vroondaal on demand, thereby mitigating the financing needs.

Furthermore, the year 2010 presented challenges for GEM Vroondaal. The actual land sale for private commissioning plots reached only 2.800 m^2, falling short of the expected 6.000 m^2. Also, GEM Vroondaal encountered additional interest costs. In an effort to limit losses, investments were restricted, including the temporary suspension of active land acquisition from private individuals, and reduced investments on land development and preparation activities compared to the 2010 budget.

4.1.3.2 Milestone 2: 2011 – 'Vroondaal Revisited' and revised land exploitation

As land sales fell short to the anticipated levels and interest costs were significantly burdening the project's company liquidity, efforts were made to develop a new spatial planning vision for the urban area development of Vroondaal. The new vision 'Vroondaal Revisited' offered substantial financial benefits and risk reduction compared to continuing with the current plans for Vroondaal. The key elements of the revised spatial vision include:

1. Increasing the number of housing units: the vision proposes differentiation and densification, leading to approximately 2.150 housing units.
2. Price and product differentiation: introducing new housing types and price ranges aims to appeal to a broader range of buyers. The price range in Nieuw Vroondaal starts from approximately €375,000 - €400,000, while Vroondaal Sloten targets a price range of around €275,000 - €300,000. Additionally, Vroondaal Sloten will have a program of terraced houses and townhouses.
3. Phasing and sub areas: The new vision divides Vroondaal into four subareas (see Figure 16), each with its own distinct profile. Oud Vroondaal continues the existing concept, Nieuw Vroondaal features a different urban design but maintains an exclusive connection with Oud Vroondaal, and sub area 4 in Sloten will be developed earlier than initially planned. Sub area 5 in Sloten is temporarily put on hold.
4. Urban design: Nieuw Vroondaal will adopt a different layout, incorporating small-scale public spaces that contribute to a unique neighbourhood identity.

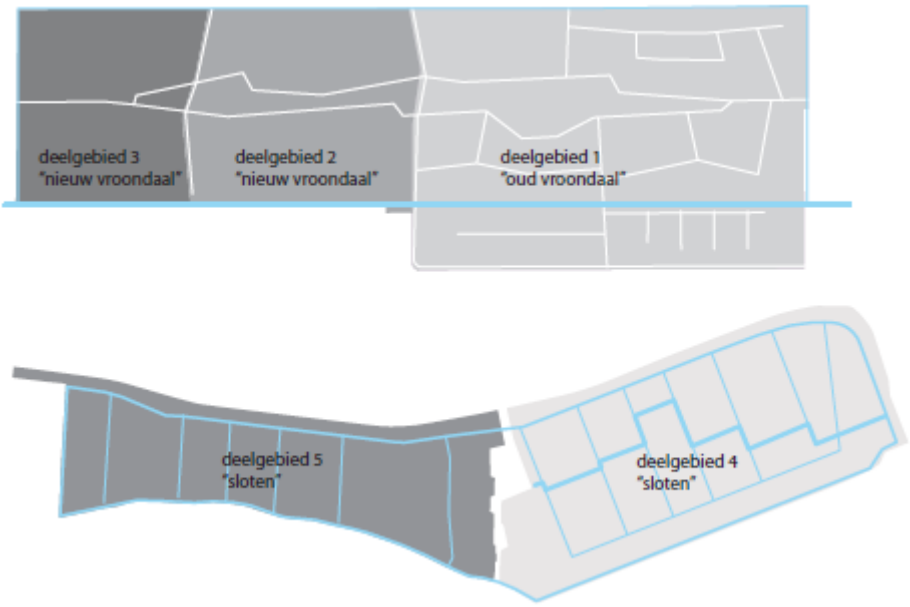

Figure 16 Sub area division as part of 'Vroondaal Revisited' (Gemeente Den Haag, 2011c)

The revised spatial vision aims to improve the projected financial result, which is currently estimated at approximately € 1.2 mln. positive net present value. Risks are reduced by increasing plot sales, promoting more project-based construction, and encouraging private commissioning from a broader target group. Land sales are targeted at 150 homes per year (starting in 2013). This rate is necessary for a land exploitation result of € 1.2 mln positive. However, the sales target of 150 homes per year, starting in 2013, is deemed overly ambitious based on current market insights and expectations. The risk analysis anticipates that there is a 80% change that a delay in sales could result in a negative net present value of approximately € 12 mln. Against this risk is a potential profit in the real estate exploitation (VEM Vroondaal) of € 20 mln (nominal). This result can be increased if the risks can be controlled and the risk provision of € 20 mln does not have to be drawn on fully (Gemeente Den Haag, 2011b; Gemeente Den Haag, 2011c)

In summary, the new spatial planning vision presents improved prospects for land sales and financial outcomes. The risk analysis demonstrates a potential negative result in land exploitation of approximately € 12 mln. However, this potential shortfall is offset by profit potential in the real estate exploitation, alongside a risk provision of € 20 mln. Therefore, the municipality agrees with the assumptions made for land exploitation, risk analysis, and real estate exploitation.

4.1.3.3 Milestone 3: 2012 – Correction on profit-taking

The proposal was made to the shareholders of GEM Vroondaal to make an adjustment of € 12 mln. to the (partially realized) profit recognition. This adjustment specifically affects the municipality of The Hague, resulting in a correction of € 6.2 mln. Additionally, the land value of Vroondaal was reassessed, as it served as collateral for the financing provided by the municipality. This resulted in a disadvantage for the Department of Land Development (Grondbedrijf) of € 1.8 mln (Gemeente Den Haag, 2013a).

4.1.3.4 Milestone 4: 2014 – Approval new land use plan and land exploitation plan by city council

The transformation and implementation of the new spatial planning vision and urban design plan into a land-use plan and land exploitation plan has been a significant milestone in the governance process. There were several reasons for the formulation of a new land-use plan. Firstly, the expiration of the 10-year period within which a land-use plan must be updated necessitated its revision. Secondly, the new land-use plan was designed to accommodate the demands of the housing market while establishing a framework for future flexibility in layout. By focusing on the main structure, the plan allows for greater adaptability in the secondary plan structure (Gemeente Den Haag, 2014b).

The city council adopted both the land-use plan and the land exploitation plan Madestein-Vroondaal on February 20, 2014. However, these plans were subject to appeals. Given that both plans fell under the jurisdiction of the Crisis and Recovery Act, the Council of State was required to make a ruling within six months. The decision of the Council of State regarding the land-use plan and land exploitation plan for Madestein-Vroondaal was positive for the municipality of The Hague. Consequently, both plans became effective and, after the completion of the administrative process, became irrevocable. The land-use plan came into effect in August 2014, enabling land development for construction preparations for the first phase in Vroondaal South (Gemeente Den Haag, 2015)

4.1.3.5 Milestone 5: 2018 – Expeditious land development

Land sales and real estate developments in the Vroondaal sub areas continue expeditiously. The outlook for following years were promising. The four sub areas Zuid I and II and Noord I and II make up the Vroondaal urban area development, see Figure 17. The Zuid I region is nearly finished. Midway through 2018, the land allocation for North II will begin, and the land for South II will be developed (Gemeente Den Haag, 2018). The names of these sub areas have changed several times because of image and marketing purposes. Currently, the names of the sub areas are Vroondaal Hofstedepark, Vroondaal Westmadepark, Vroondaal Zuid and Vroondaal Vroonvaart, see Figure 17 as well.

Figure 17 Four sub areas of Vroondaal (Own illustration)

4.1.3.6 Milestone 6: 2018 – Termination of joint real estate exploitation (VEM Vroondaal)

The municipality of The Hague and private parties BPD and Synchroon jointly organised the real estate exploitation company VEM Vroondaal. VEM Vroondaal C.V. and VEM Vroondaal Beheer B.V. were dissolved as of December 31, 2018. The exploitation came to a financially equal balance through agreements with OC Vroondaal (Gemeente Den Haag, 2019).

4.1.4 Land exploitation reports

The public document-analysis on milestones has provided an overview of important milestones with regards to risk-management. With the use of the indicated milestones, five land exploitation reports were requested to the land exploitation company (GEM Vroondaal), namely 2010, 2012, 2013, 2017 and 2022. Because of the active status of the project and its continuous duration, the reports are confidential and so is the data. Therefore, some of the data is made irretrievable like the land prices, which gives a ratio but not a specific number. This paragraph is structured as follows, first, the structure of the land exploitation reports is elaborated to understand the important parameters of the feasibility analysis. Secondly, the five exploitation reports are worked out in detail to understand the feasibility of the urban area development in this specific year. Lastly, the development of the project is projected by analysing the progress of the project entirely.

4.1.4.1 Structure of land exploitation reports

GEM Vroondaal reports every year on the feasibility of the project using a land exploitation report (in Dutch). Each reports has the same structure and reflects on the following aspects regarding feasibility:

0. Summary
1. Introduction
2. Land use
3. Land bank exploitation
4. Investments
5. Revenues
6. Phasing
7. Exploitation result and risk analysis
8. Variation analysis

This document-analysis has focused on chapters 2, 4, 5, 6, 7 and 8. Chapter 7 Exploitation result and risk analysis indicates the financial feasibility of the project using a Net Present Value (NPV) calculation. A positive NPV is reflected upon a risk analysis using a Monte Carlo simulation. This simulation presents the possible variation of the NPV and indicates sensitive parameters. For the parameters of the NPV, only the investments and revenues that directly affect the land exploitation are considered. To better understand the impact of the parameters on the feasibility, investment and revenue parameters are outlined in Table 1.

Investments			
1	Civil engineering investments *Civieltechnische investeringen*	Clearance of terrain Elevation Groundwork Pavement Drainage Green / Water Public lighting and fire hydrants	*Opruimen terrain* *Ophoging* *Grondwerk* *Verharding* *Riolering* *Groen / Water* *Openbare verlichting en brandkranen*

		Artworks Other	*Kunstwerken* *Diversen*
2	Plan development and vtu costs *Planontwikkelings- en vtu-kosten*	A) Direction/support B) Urban planning C) Environmental studies D) Finances E) Civil engineering F) Other	*A) Aansturing / ondersteuning* *B) Stedenbouw* *C) Omgevingsonderzoeken* *D) Financiën* *E) Civiele techniek* *F) Overig*
3	Special costs *Bijzondere kosten*	Remittance Westland Zoom Investments Westland Zoom Reorganization of existing infrastructure Noise barrier / screen sub area Bomen Archaeology Art Risk provision	*Afdracht Westlandse Zoom* *Investeringen Westlandse Zoom* *Herinrichting bestaande infrastructuur* *Geluidswal/-scherm deelplan* *Bomen* *Archeologie* *Kunst* *Risicoreservering*
4	Profit-taking *Winstnemingen*		
5	Interest and financing costs *Rente- en financieringskosten*		
Revenues			
1	Land revenues *Grondopbrengsten*	Land price	*Grondprijs*
2	Other revenues *Overige opbrengsten*	Contributions Sale of demolition equipment Sale of maintained homes	*Bijdragen* *Verkoop sloopmateriaal* *Verkoop gehandhaafde woningen*

Table 1 Structure of investments and revenues in land exploitation reports (English – Dutch)

4.1.4.2 Land exploitation 01-01-2010

GEM Vroondaal was established in March 2010. For steering and management on the expected outcome, the report of 01-01-2010 has established the guiding principles of the land exploitation.

4.1.4.2.1 NPV calculation

The land exploitation results in a positive exploitation result at end value 31-12-2025 and positive net present value as of 01-01-2010. Table 2 shows this result. The positive NPV indicates that the Vroondaal project is financially feasible.

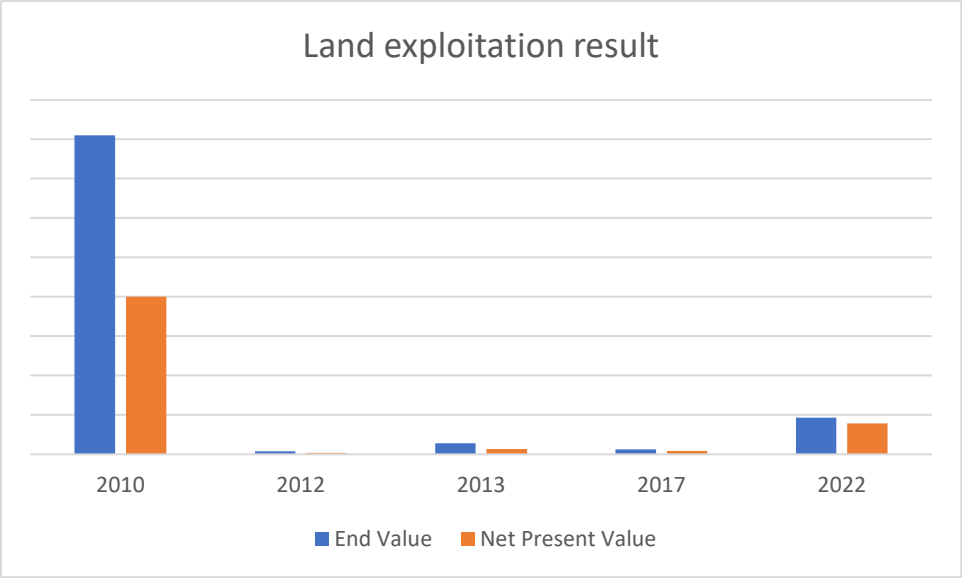

Table 2 Land exploitation result at end value and NPV

Within the five sub areas, 969 houses and plots are planned, divided between private commissioning plots (68%) and project-based construction (32%). Project-based construction is subdivided into single-family housing (64%) and apartments (36%). Table 3 indicates the proposed housing program per sub area.

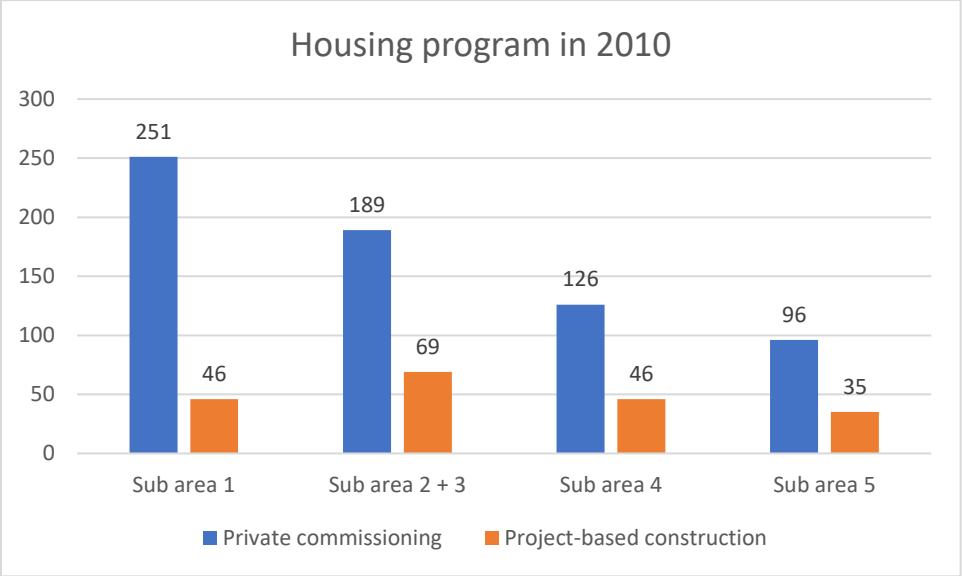

Table 3 Housing program per sub area in 2010

4.1.4.2.2 Investments

The exploitation area has largely already been acquired. Approximately 80% of the budget for land acquiring has been spent. The remaining budget largely relates to sub area 5. Table 4 shows the main assumptions of the budgets for each cost type.

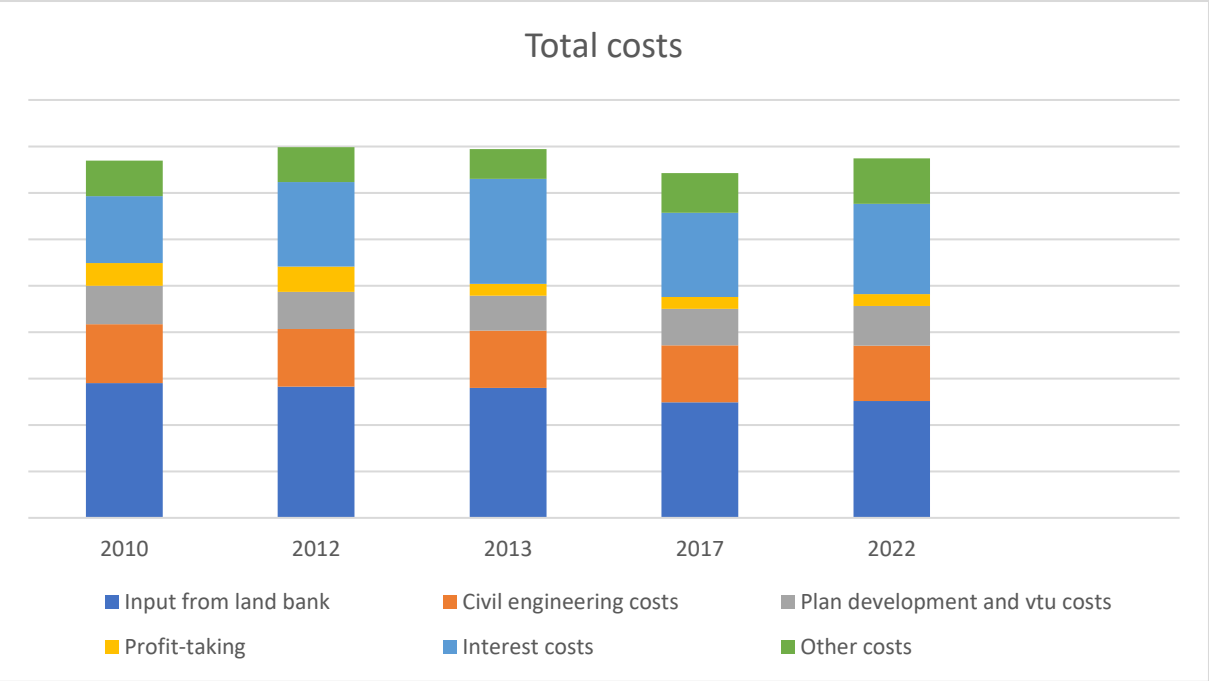

Table 4 Overview of costs in land exploitation

For the Westlandse Zoom covenant, a contribution was made to the municipality of The Hague by the establishment of GEM Vroondaal. A number of measures from the Westlandse Zoom covenant have a direct link with the development of Vroondaal and are therefore included in the Vroondaal land exploitation.

4.1.4.2.3 Revenues

The land price for private commissioning plots is higher than for project-based construction plots. These prices were set in 2007 and have not been indexed since then due to the financial-economic crisis. The land price in sub area 1 is lower than the average price for private commissioning plots, because the issued plots were sold for lower land prices.

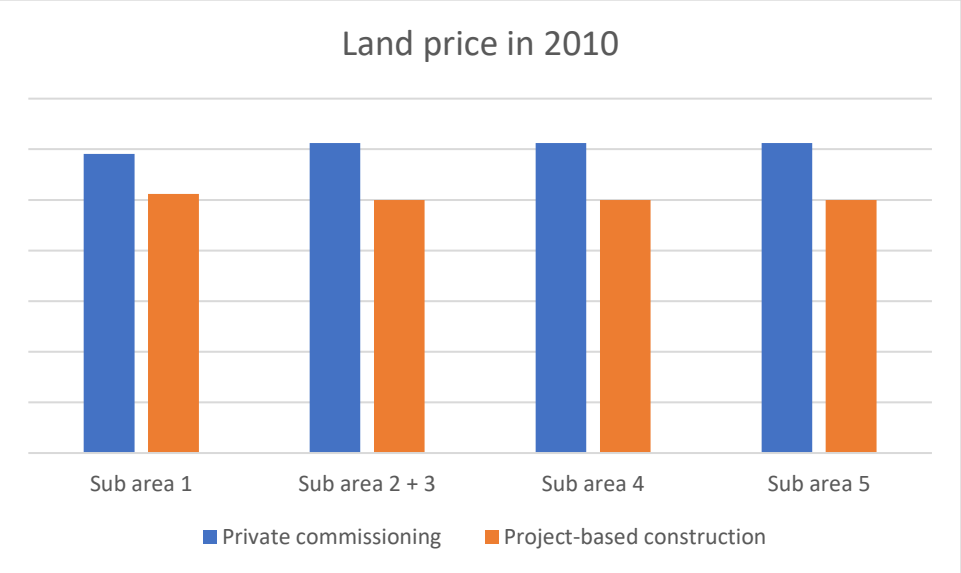

Table 5 Land price per sub area in 2010

4.1.4.2.4 Risk management

An exploitation result should be considered in the context of a risk assessment, being the indicated opportunities and risks in the project. A sensitivity analysis indicated that revenue growth is the most determining factor of the parameters. With a change of one percentage point, the effect on present value is about € 17 to € 18 mln. The change in cost increase produces a much lower effect of ca. € 5 mln. This can be explained by the fact that ca. 85% of the revenues are yet to be realized, compared to 53% of the investments.

The main risk concerns the sales rate. At a similar sales rate to recent years, the exploitation result will be negative. Optimization possibilities were sought in response to this risk. An important optimization is broadening the housing program in sub areas 3-5, which largely compensates for the negative effect of unchanged policy. In addition, optimizations are possible in the use of space, planning costs and civil costs.

By 2010, both the municipality and OC Vroondaal realized that plot sales were falling behind schedule, and the interest costs of investments were burdening the land exploitation. Continuing with the existing plans would lead to a substantial delay in the completion of Vroondaal, possibly extending the timeline from 2025 to 2045. Consequently, this delay would result in a growing deficit of approximately €40 million in land exploitation (Gemeente Den Haag, 2011d). Therefore, in the run of 2010 there was an investigation into whether the current housing program sufficiently matches the market demand. As a result, the housing program for all sub areas will be adjusted from 2011.

4.1.4.3 Land exploitation 01-01-2012

Based on market research in late 2010, involved parties in GEM Vroondaal concluded that broadening the housing program was necessary to create sufficient land sales and thus keep the land exploitation result positive. This was further elaborated in 2011 in the development vision Vroondaal Revisited. The land exploitation report of 01-01-2012 elaborates the change of programming and the effect on the NPV calculation.

4.1.4.3.1 NPV calculation

The land exploitation results in a slightly positive exploitation result at end value 31-12-2025 and slightly positive net present value as of 01-01-2012. Table 6 shows the establishment of this result. The positive NPV indicates that the Vroondaal project is financially feasible. However, with the NPV being 0.05 % of the total revenues, it can be questioned how feasible this business case is.

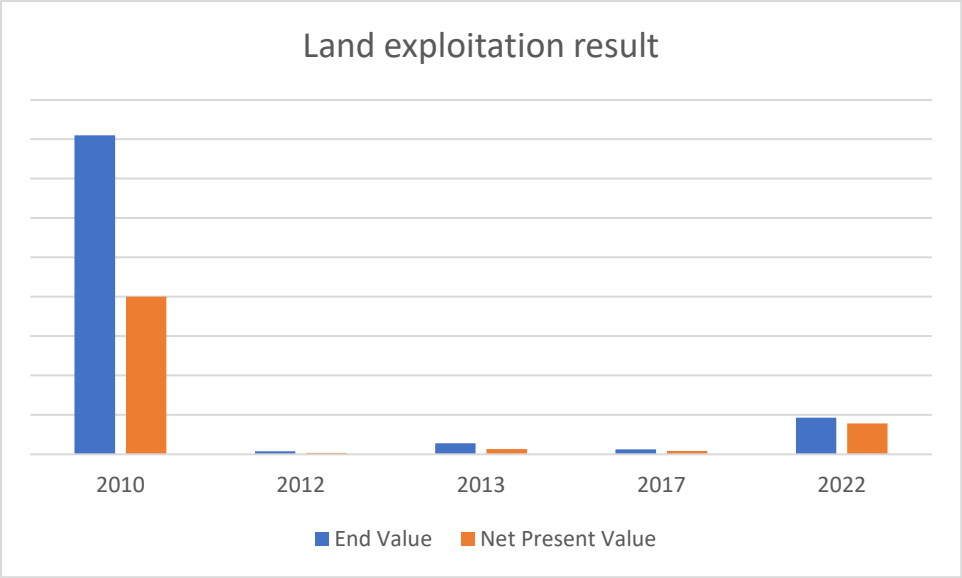

Table 6 Land exploitation result at end value and NPV

This land exploitation result shows a decrease 99% compared to the previous year 2010. The primary cause is the decrease in land revenue due to a shift towards more project-based construction in lower financing categories. In total, 2.150 homes are planned, an increase of 1.181 homes which require more access and parking in public areas and causes lower land prices.

The program in the previous land exploitation was based on the intention to turn Vroondaal into a villa district with mostly private commissioning plots. In the new spatial planning vision of Vroondaal Revisited, this has been changed to a much larger share of project-based development with a broadened housing program and smaller plots. This results in a flip in the ratio of the number of privately commissioned plots to the number of project-based homes to be developed, see Table 7.

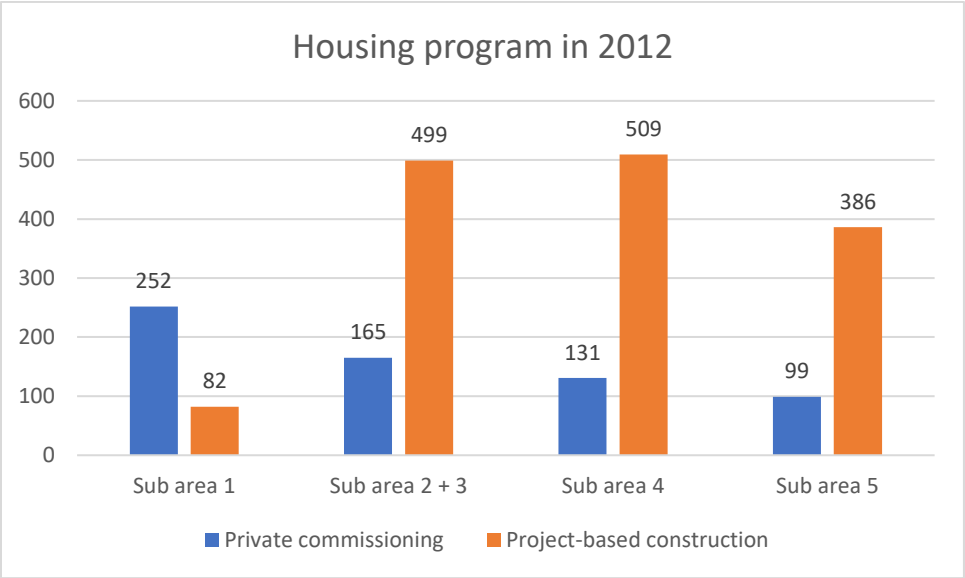

Table 7 Housing program per sub area in 2012

4.1.4.3.2 Investments

Since the exploitation area has largely been acquired, 82% in 2012, a large share of the budget for land acquiring has been spent. Compared to 2010, there has been an increase in interests costs. Table 8 shows the main assumptions of the budgets for each cost type.

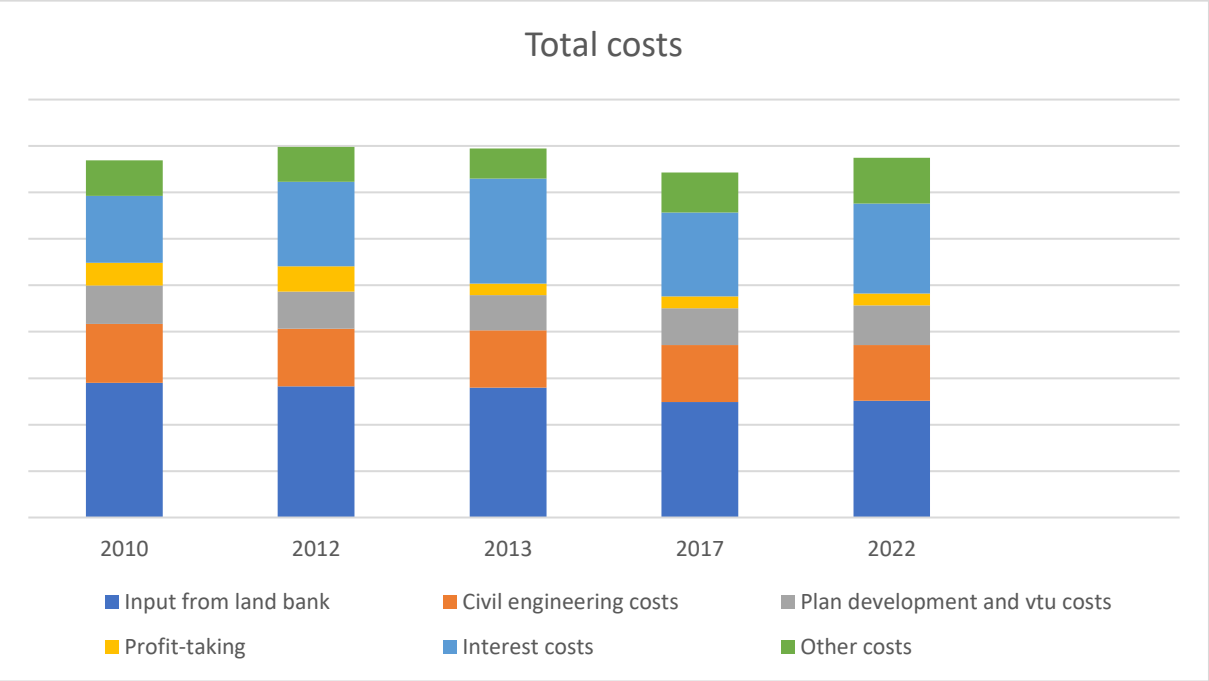

Table 8 Overview of costs in land exploitation

4.1.4.3.3 Revenues

The new spatial planning vision results a decreased average land price for project-based development and is estimated to be lower than for private commissioning, see Table 9. By flipping the ratio of project-based to private commissioning, this leads to a significant decrease in land revenues. On the other hand, with the broadened housing program, a higher sales rate is expected, as a result of which the interest costs on land exploitation is reduced. This leads to a slightly positive land exploitation.

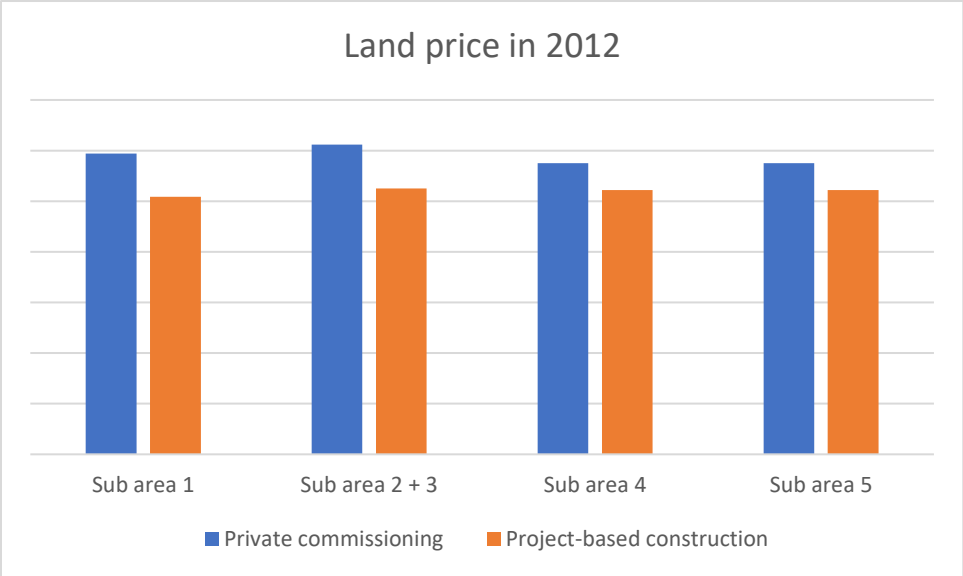

Table 9 Land price per sub area in 2012

4.1.4.3.4 Risk management

The sensitivy analysis indicates that the probability of a negative outcome is much higher (90%) than a better outcome (10%), which results in a negative NPV. With a 90% chance of occurrence, the positive NPV result in the beginning can rightfully be questioned. Based on realistic input assumptions for the risk analysis, a negative end value can be perceived as a realistic land exploitation result. To cover the risks with 90% certainty, a risk reserve of approximately € 28 mln. should be taken as of 1-1-2012.

The unchanged policy scenario of October 2010 showed that a deviation in sales rate, adjusted to the low sales rate of the previous years, resulted in a final exploitation year of 2045 and an exploitation result of about € 40 mln. negative at present value. Compared to that scenario, the risk profile of 01-01-2012 has improved by at least € 12 mln. As the real estate exploitation is operated by the same shareholders, the assumptions made within the exploitation about sales rate and land prices are essential for steering the result of the land exploitation. Next to this, the deterioration in the exploitation result is mainly due to the decrease in land revenues as a result of the shift to more project-based development. It is to be considered that due to this shift, a large part of the margins for profit and risk end up in the real estate exploitation company, VEM Vroondaal.

The sales rate in the land exploitation has been compared to a market research and appeared to be on the high end of the range. Therefore, the risk of sales rate is negative with a decrease in plot sales up to 55 homes (from 160 to 105 per year). This can cause a run-out of maximum 6 years and additional planning costs. Another negative risk effect is the average revenue growth. For average revenue growth, the minimum is set at 0% and the maximum at 2.5%, with a most likely value in accordance with the land exploitation (2.0%). However, the probability of a lower revenue increase is much higher than a higher revenue increase.

4.1.4.4 Land exploitation 01-01-2013

4.1.4.4.1 NPV calculation

The land exploitation results in a positive exploitation result at end value 31-12-2032 and positive net present value as of 01-01-2013. Table 10 shows the establishment of this result. The positive NPV indicates that the Vroondaal project is financially feasible.

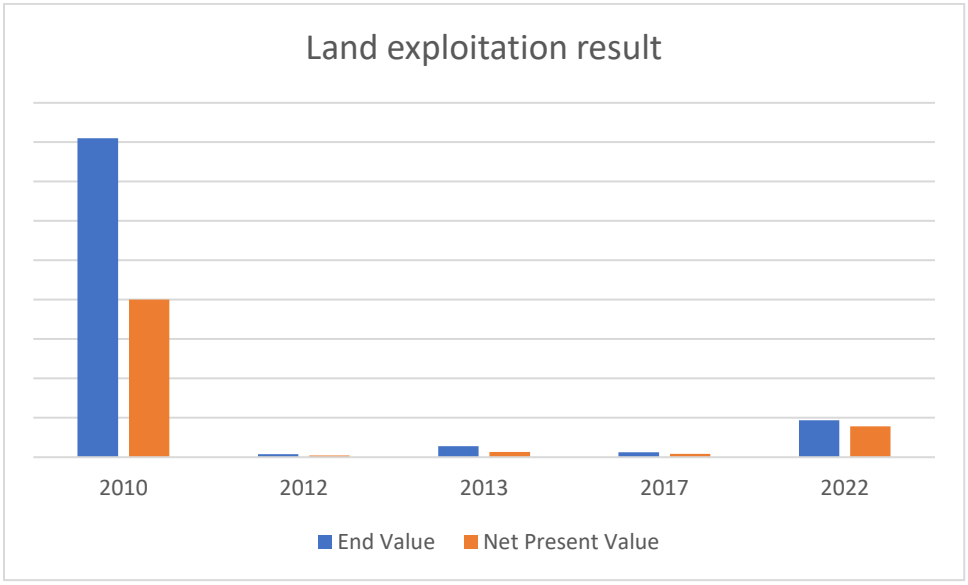

Table 10 Land exploitation result at end value and NPV

The main adjustments in the land exploitation per 01-01-2013 compared to the land exploitation of 01-01-2012 concern a reduction in the sales rate and the revenue growth parameter. The sales rate has been adjusted from 160 homes per year to 60 per year (from 2014), increasing to 100 per year in 2016-2018 and 120 per year from 2019-2031. The duration of the overall development has been extended from 2025 to 2032. Combined with the negative effects of adjustments in cost and revenue growth up to and including 2015 (from 2% to 0%), there is a negative effect on present value.

In order to achieve a robust land exploitation, optimizations have been made in terms of costs and phasing. Because this is insufficient to compensate for the negative effect of the adjustment in sales rate and revenue increase, it has been proposed to make a correction of € 12 million to the (partially realized) profit-taking. This results in a slightly positive exploitation result.

The housing program in Table 11 concerns mostly ground-level housing as part of project-based construction development. The distribution can change in the future depending on the housing needs but within the agreed frameworks of a maximum of 2.149 homes, of which at least 30% are private commissioning.

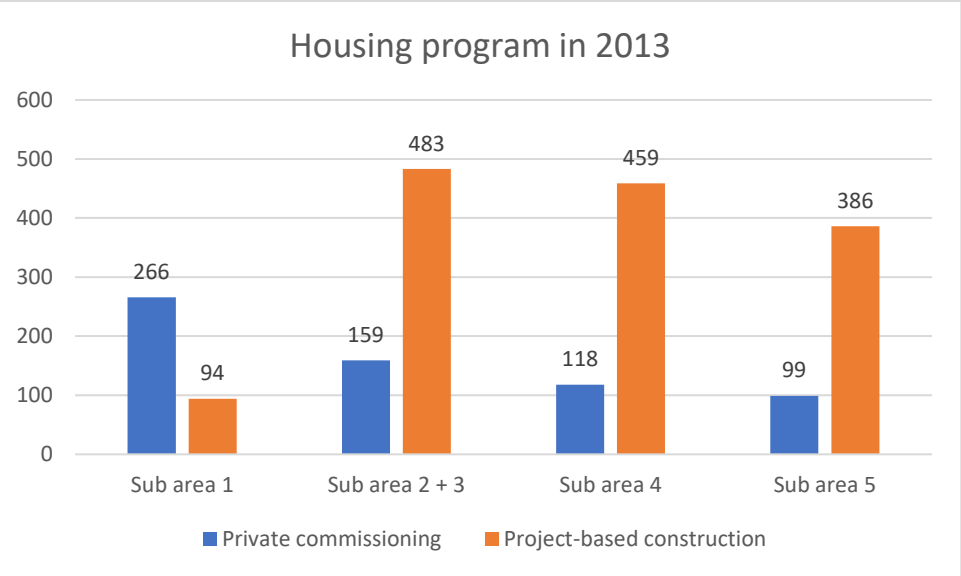

Table 11 Housing program per sub area

4.1.4.4.2 Investments

The exploitation area has largely already been acquired, approximately 87% of the budget for land acquiring has been spent. Table 12 shows the main assumptions of the budgets for each cost type. In order to partially offset the negative adjustments in key parameters such as sales rate and revenue increase, a correction on profit-taking was made. This correction of the profit-taking results in a more robust land exploitation. Also, the interest costs yet to be realized have increased, due to the reduction in land sale rate which has moved the final year from 2025 to 2032.

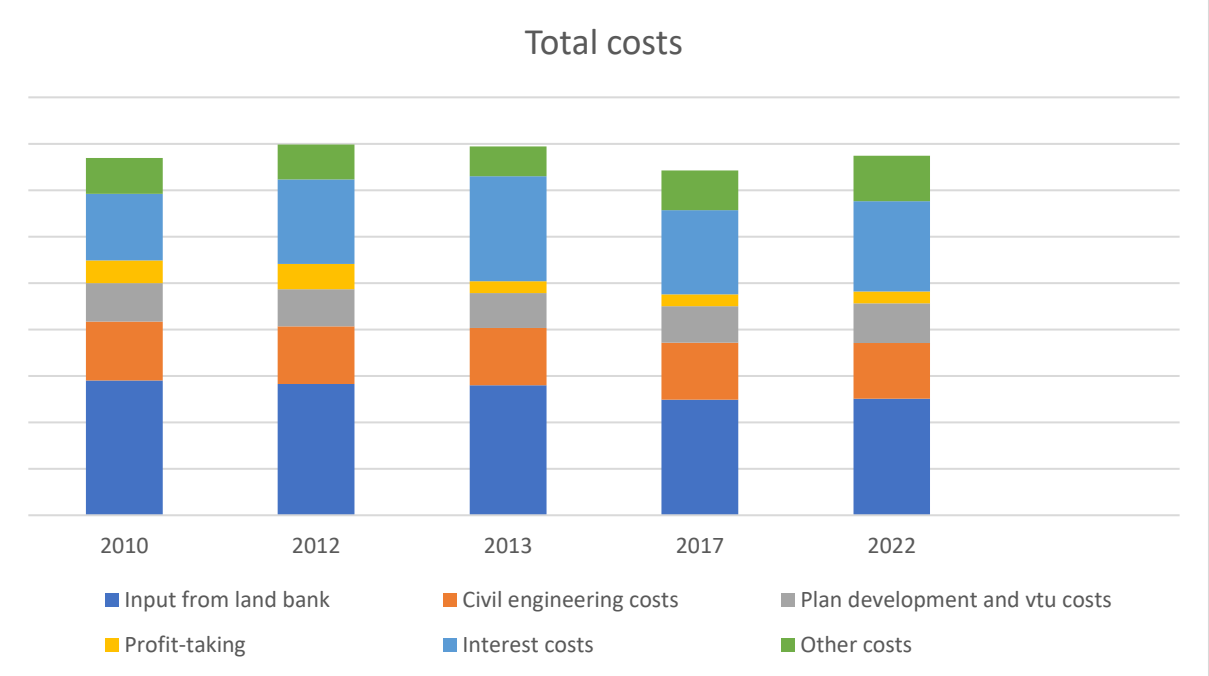

Table 12 Overview of costs in land exploitation

4.1.4.4.3 Revenues

The average land price in the land exploitation of 01-01-2013 is lower than the average land price in 2012. This deterioration is caused by a land price discount in the years 2014 to 2016, the incorporation of 10.000 m^2 GFA of facilities (instead of housing) and the maintenance of existing dwellings. A discount has been assumed on land prices in 2014-2016 based on the assumption that in the next few years a further reduction in sales prices of real estate will appear. From 2017 it is assumed that the land prices will increase by 2% annually from the 2013 price level.

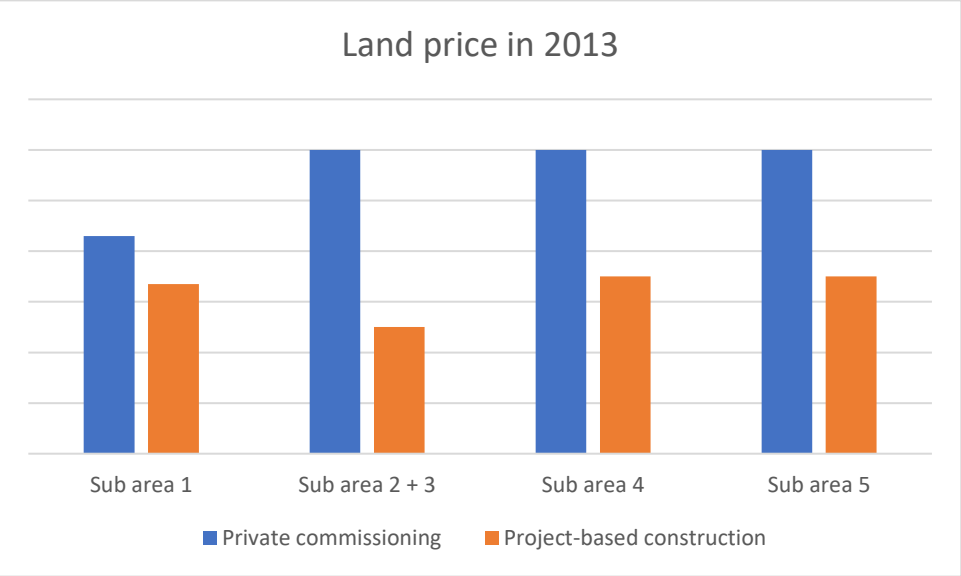

Table 13 Land price per sub area

As a result of the continuing crisis in the housing market and the prospects for the next few years, the sales rate has been significantly adjusted in relation to the forecasts of Vroondaal Revisited. These assumptions are partly based on the update of the quantitative market research and a more in-depth market study. After the procedural and civil engineering preparations in 2013, a new development will start in sub area 4 and a total land sale rate of 60 homes per year is projected in the land exploitation. This rate increases to 100 homes per year from 2016 and 120 per year from 2019-2031. Depending on market development, an earlier start of sub area 2 and 3 is possible. Despite reducing the revenue increase to 0% through 2015, the total revenues have increased because a significant part of the land revenue is phased later in time as a result of the reduction in the rate of disposal in the early years.

Also, GEM Vroondaal has adopted a new strategy for land issuing, in which risk-bearing developments will be adopted through VEM Voondaal. Market parties BPD and Synchroon will develop these homes and financing in the real estate exploitation will therefore shift from VEM Vroondaal to OC Vroondaal.

4.1.4.4.4 Risk management

The sensitivity analysis has shown that the land exploitation result is close to the average outcome of the risk analysis. Therefore, the probability of a worse outcome is 60%. The risk profile has improved compared

to the land exploitation as of 01-01-2012 from about 90% to about 60%, resulting in a more balanced risk profile. Important risk parameters are:

- Interest rate
- Cost increase
- Revenue increase
- Cost of land development
- Land prices for private commissioning and projet-based
- Sales rate

For the interest rate, the assumption is that the interest rate parameter will not change through 2017 due to financing agreements. From 2018, the most likely value has a negative impact on the risk balance. The average cost increase from 2016 (2015 at 0%) has a slightly positive effect on the risk balance. For the proposed average revenue increase (up to 2015 at 0%), this has a significant negative effect on the risk balance, as the probability of lower revenue growth is considered higher.

For the plots to be sold, land prices have been lowered, improving the probability of sale. Given the average land price of the plots already sold, the variation on this land price in the risk analysis is positive. However, for a robust land exploitation, lower land prices have been assumed in the calculation. Market studies were used for determining the sales rate in the land exploitation. Based on these studies, a bandwidth of 100 to 160 homes per year has been assumed as of 2018. Compared to the assumption in the land exploitation (120 homes per year), this results in a positive range.

Risk management strategies include:

- **Cash-flow driven land exploitation**: costs are incurred only if they are matched by short-term revenues.
- **Optimizing financing costs**: the postponement of the maximum financing requirement to 2015 (due to the low sales rate), asks for security of the required (re)financing for a longer period of time. New long term financing agreements will further reduce the risk of higher financing costs.
- **Optimizing civil costs**: adjustments in the choice of materials and special investments such as the upgrading of Park Madestein will reduce the civil costs.
- **Marketing**: investment in marketing is necessary to increase brand awareness among Vroondaal's broader target group, thereby increasing the likelihood of meeting or preferably exceeding the adopted sales pace.

4.1.4.5 Land exploitation 01-01-2017

The city council of The Hague adopted the new land-use plan and from the end of 2014, preparations for the construction of Vroondaal Zuid had started and the first plots were sold in 2015. The prosperous sale of homes in the first phase of Vroondaal Zuid (2015-2016) has shown the success of the new vision and differentiated housing program.

4.1.4.5.1 NPV calculation

The land exploitation results in a positive exploitation result at end value 31-12-2027 and positive net present value as of 01-01-2017. Table 14 shows the establishment of this result. The positive NPV indicates that the Vroondaal project is financially feasible.

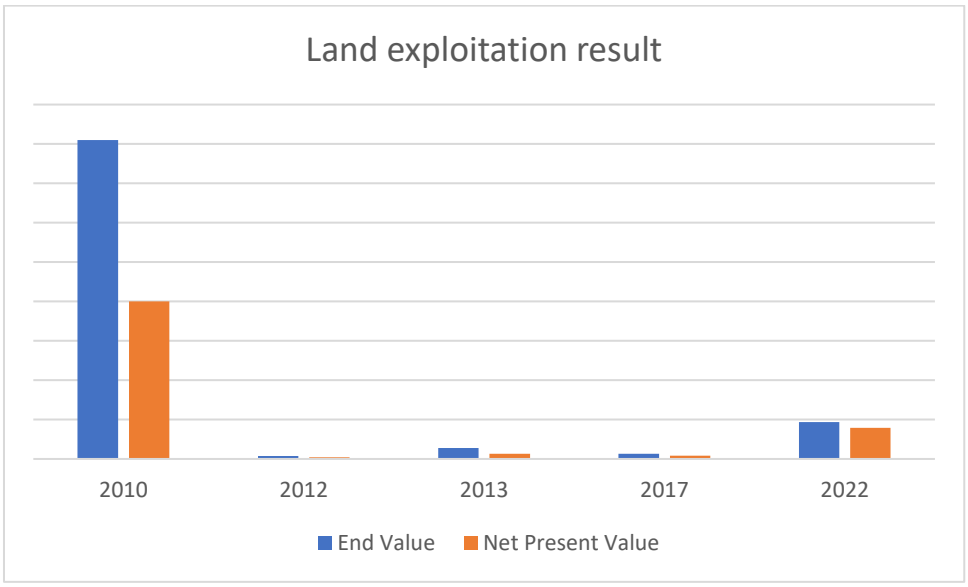

Table 14 Land exploitation result at end value and NPV

Within the four sub areas, the land exploitation provides for 2.001 homes and plots, divided between private commissioning (approximately 25%) and project-based construction (approximately 75%). Within the agreed framework of maximum 2.150 homes, the number of housing can change. Table 15 indicates the proposed housing program.

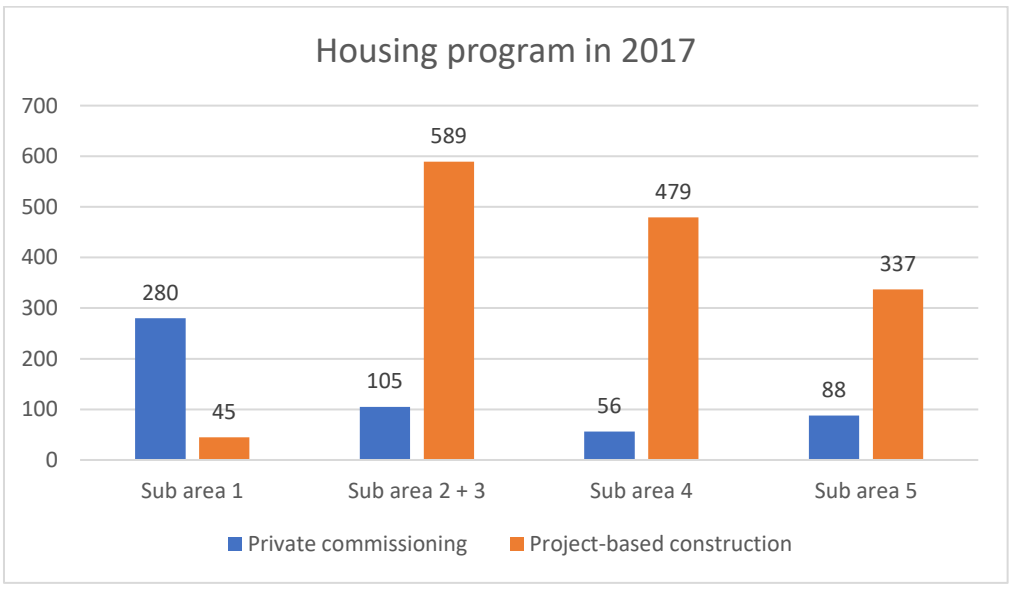

Table 15 Housing program per sub area

4.1.4.5.2 *Investments*

The exploitation area has largely already been acquired, approximately 97% of the budget for land acquiring has been spent. Table 12Table 16 shows the main assumptions of the budgets for each cost type. The municipality of The Hague made a contribution in addition to regional contributions from from the Rotterdam The Hague Metropolitan Region and Province of South Holland for the upgrading of Park Madestein. Together with the original contribution from the land exploitation the budget fosters a design that aims a high level furnishing.

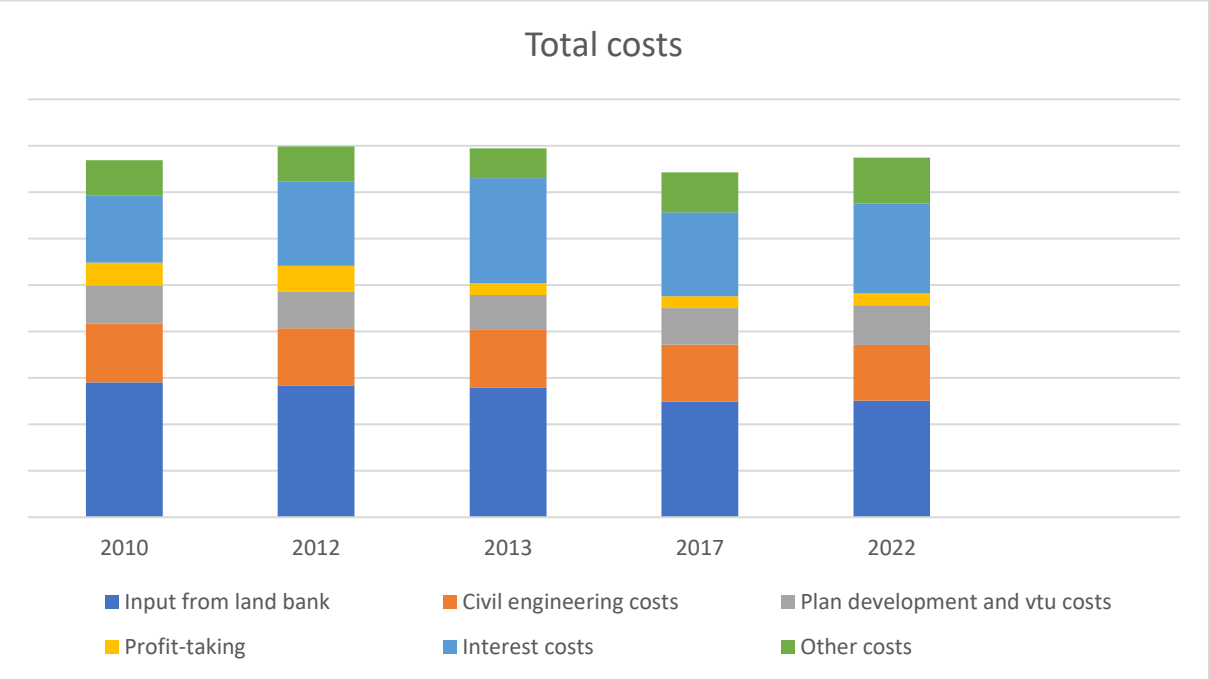

Table 16 Overview of costs in land exploitation

The land exploitation of 01-01-2016 included a risk reserve. This risk reserve has been increased, partly because of a significant positive effect on the interest rate in the municipal land bank. Also, the current financing will be repaid faster than agreed. The credit interest rate has been adjusted. The remaining interest costs together with the book value, are significantly lower than anticipated in 2013.

4.1.4.5.3 *Revenues*

The land revenues have shown a slight decrease in average land value compared to 2016. This decrease is shown in Table 17.

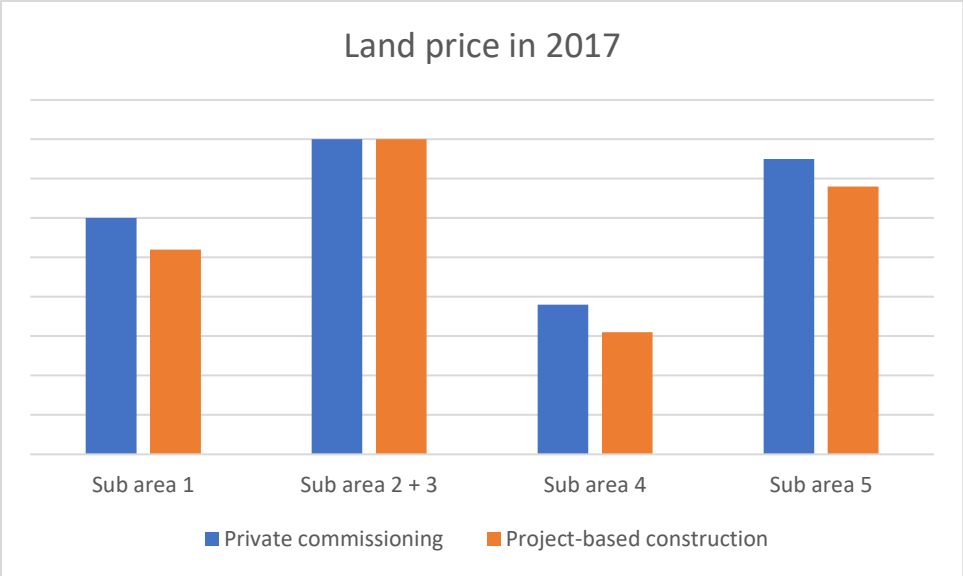

Table 17 Land price per sub area

4.1.4.5.4 Risk management

The sensitivity analysis indicates the most determining parameters of the risk analysis. For financing and interest rates, interest costs will not change significantly (until 2021) because the financing is largely secured with long-term loans. As of 2022, the most likely value is in accordance with the assumption in the land exploitation.

For the average cost increase, the minimum is set at 0% and the maximum at 3.0%, with a most likely value in accordance with the land exploitation (2.0%). This means a positive impact on the risk balance. For the average revenue increase, the minimum is also set at 0% and the maximum at 3.0%, with a most likely value in line with the land exploitation (2.0%). In principle, this has a significant negative effect on the risk balance, as the probability of a lower revenue increase (range 0 to 2) is considered higher than a higher revenue increase (2 to 3.0).

The sales rate in the land exploitation is based on increasing land sales in 2015 and 2016 and positive expectations for the next few years. From 2021 onward, it was assumed that land sales would fall back to 130 homes per year. Based on previous housing market studies, a range had been formulated from 100 to 160 homes per year starting in 2018. Compared to the assumptions in the land exploitation, there is a negative range of - 25 to + 10 homes per year.

Risk management strategies include:

- **Acceleration of land development for construction and housing**: GEM Vroondaal started the preparation of sub areas North II and South II, so that by mid-2018, developable land can be sold to developers.
- **Optimizing civil costs**: adjustments in the choice of materials and special investments such as the upgrading of Park Madestein will reduce the civil costs. However, possibilities are limited since the design must comply with the Public Space Manual.

- **Marketing**: investment in marketing has increased brand awareness among the target group of Vroondaal. Therefore, promoting Vroondaal will continue in 2017 to increase the likelihood of meeting or preferably exceeding the adopted land sales rate.
- **Issuing strategy**: making optimal use of market demand by broadening the supply of project-based housing in South I and North II and including plots at an average of 400 m^2.
- **Increasing land sales with purchase guarantees**: in addition to the share of housing production by OC Vroondaal, GEM Vroondaal also tried to agree purchase agreements with third parties.

A risk reserve is included in the land exploitation. This reservation can be used to absorb the financial effects of risks that arise on short term despite the above-mentioned management measures.

4.1.4.6 Land exploitation 01-01-2022

The prosperous land sales have demonstrated the success of housing programming. From 2018, this was followed up in sub area North II. In 2020, housing construction started in sub area South II, which mean that all sub areas of Vroondaal are in development simultaneously.

4.1.4.6.1 NPV calculation

The land exploitation results in a positive exploitation result at end value 31-12-2026 and positive net present value as of 01-01-2022. The exploitation result has improved compared to the land exploitation of 2017. Table 18 shows the establishment of this result. The positive NPV indicates that the Vroondaal project is financially feasible.

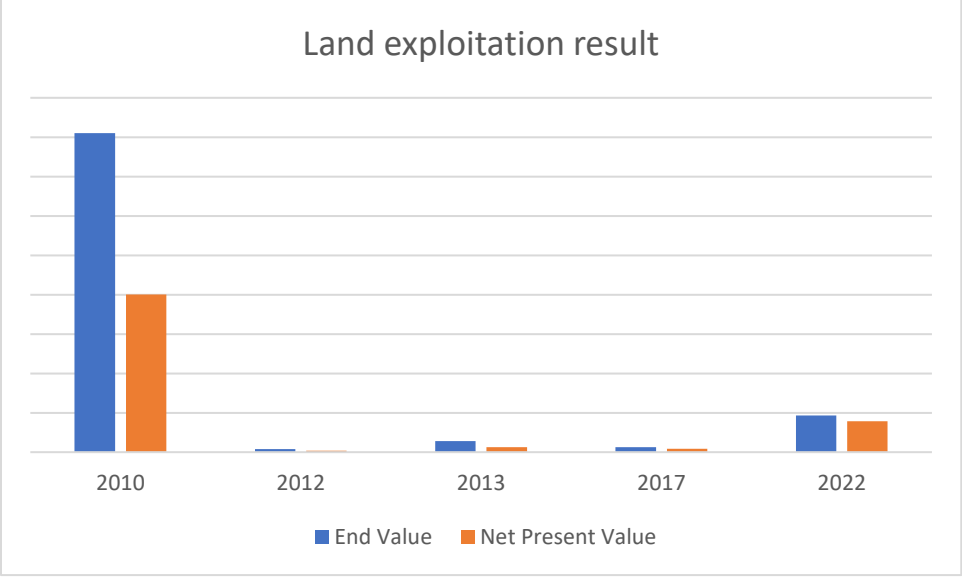

Table 18 Land exploitation result at end value and NPV

The allocatable area has decreased slightly by approximately 600 m^2 due to necessary adjustments in the sub areas North II and South II. Therefore, the total number of homes has decreased by 15 homes compared to the previous year, see Table 19. The real estate developmnt of OC Vroondaal can also lead to adjustment of the total number of housing units.

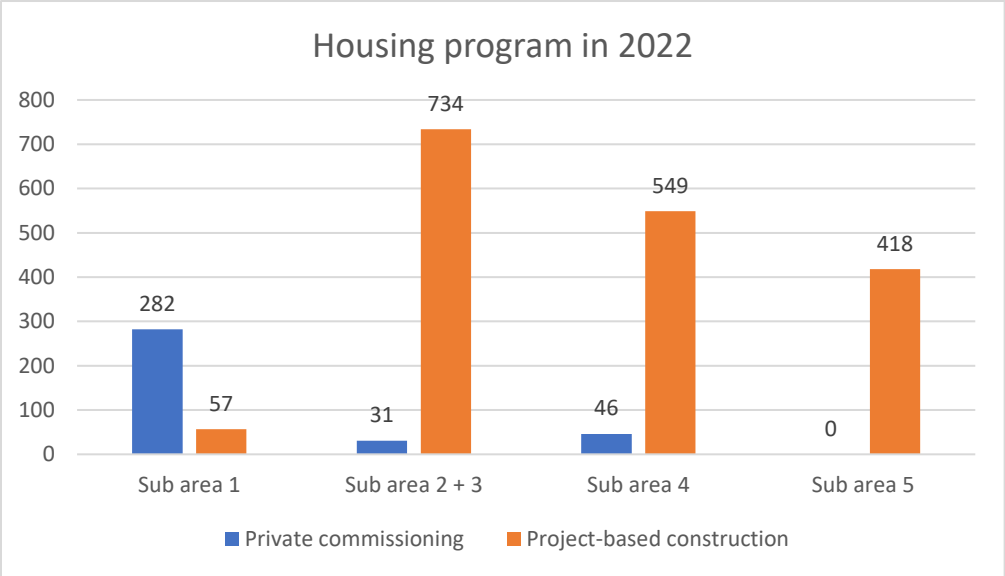

Table 19 Housing program per sub area

4.1.4.6.2 Investments

Table 20 shows the main assumptions of the budgets for each cost type. The financing need decreases due to a land sale for 300 houses. Also, the financing need steadily decreases further due to the land sale rate of 100 homes per year on average. As a result there is a positively balanced land exploitation in 2026 with a positive end value.

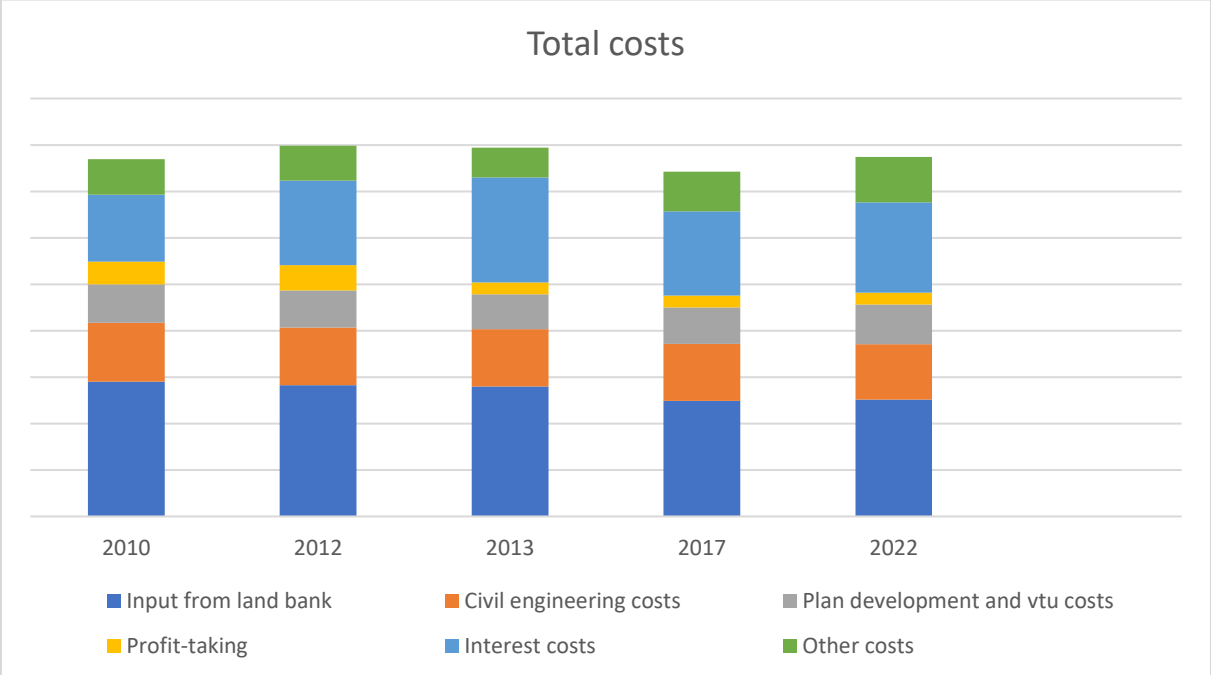

Table 20 Overview of costs in land exploitation

4.1.4.6.3 Revenues

In response to rising market prices, a land value appraisal took place at the end of 2021. As a result, the participating parties have increased the land price for South II, part of North II, II and an additional increase

of the land prices for private commissioning plots in phase 4 in North I, see Table 21. This resulted in a significant improvement in the land exploitation result.

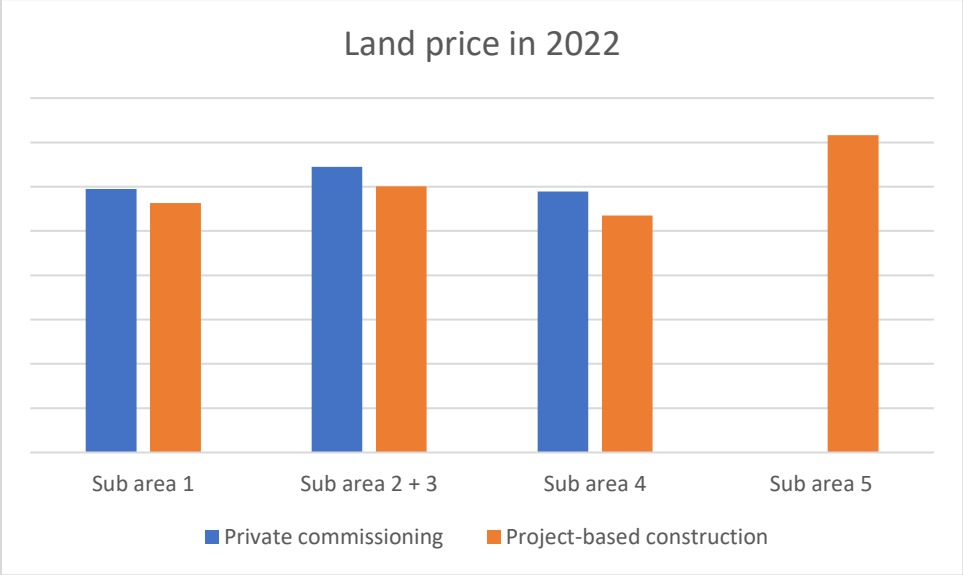

Table 21 Land price per sub area

4.1.4.6.4 Risk management

The sensitivity analysis has identified the most determining parameters of the risk analysis:

- Cost increase
- Revenue increase
- Cost of land development
- Plan development costs
- Land price South II

The municipality and market parties have agreed in early 2022 on a significant increase in the land price in South II and part North II, based on a land price assessment. Also, a significant increase in inflation has set in, exacerbated by the war in Ukraine. As a result, construction costs are increasing significantly and the risk that this increase can no longer be absorbed by a further increase in market prices is pressuring the residual land value. This pressures the feasibility of the urban area development.

Risk management strategies include:

- **Accelerated realisation of land development for construction and housing**: due to the considerably high demand for housing construction, there is a risk of not being able to offer ready-to-build land in time. Therefore, GEM Vroondaal has started preparing a field in Noord II so that from 2022 onwards, construction land can be sold to developers in line with the other fields in Noord II.
- **Optimizing civil costs**: any setbacks in land price development and sales can be absorbed (to some extent) by adjustments in civil costs. Adjustments in the choice of materials and special investments

such as the upgrading of Park Madestein will reduce the civil costs. However, possibilities are limited since the design is largely fixed on quality approvement by the municipality.

- **Marketing**: the investment in marketing has increased brand awareness among Vroondaal's broader target group since 2014. This has increased the likelihood of meeting or preferably exceeding the adopted land sales rate. The effects have been evident in recent years. In 2022, area promotion will continue at limited cost, focusing on positioning fields in North II and South II.
- **Issuing strategy**: making optimal use of market demand by broadening the supply of project-based housing in South I and North II and including plots at an average of 400 m^2. In 2021, housing near water for recreation or sailing purposes in South II was added.
- **Increasing land sales with purchase guarantees**: in addition to the share of housing production by OC Vroondaal, GEM Vroondaal also agreed on purchase agreements with third parties. Agreements have been made with these parties about the partially guaranteed purchase of construction land.

The risk analysis leads to an improvement of the risk profile, as the probability of a worse is 50%. Therefore, the result of the worst case calculation in the Monte Carlo simulation (10% score) has improved from a negative value to a positive value. This is due to the increased land prices and improved land exploitation result. In the risk analysis, the most decisive risk item is rising construction costs in relation to declining market prices. As a result, the feasibility of the urban area development and thus the level of the land price will be pressured. The land exploitation includes a risk reserve with which the risks can largely be absorbed.

4.1.4.7 Comparison between land exploitation reports

The analysis of different land exploitation reports reveals several key findings. Firstly, there has been a significant increase in the total number of housing units, accompanied by a significant shift in the division between private commissioning and project-construction based development, see Table 22. The proportion of private commissioning has decreased over time, falling short of the initially anticipated 30%, see Table 23. This shift in development strategies has proven to be beneficial for the feasibility of the urban area development.

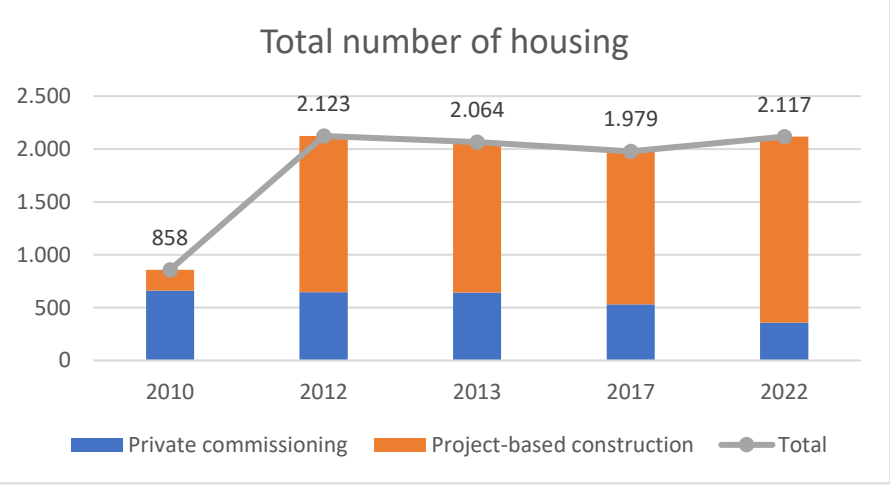

Table 22 Total number of housing

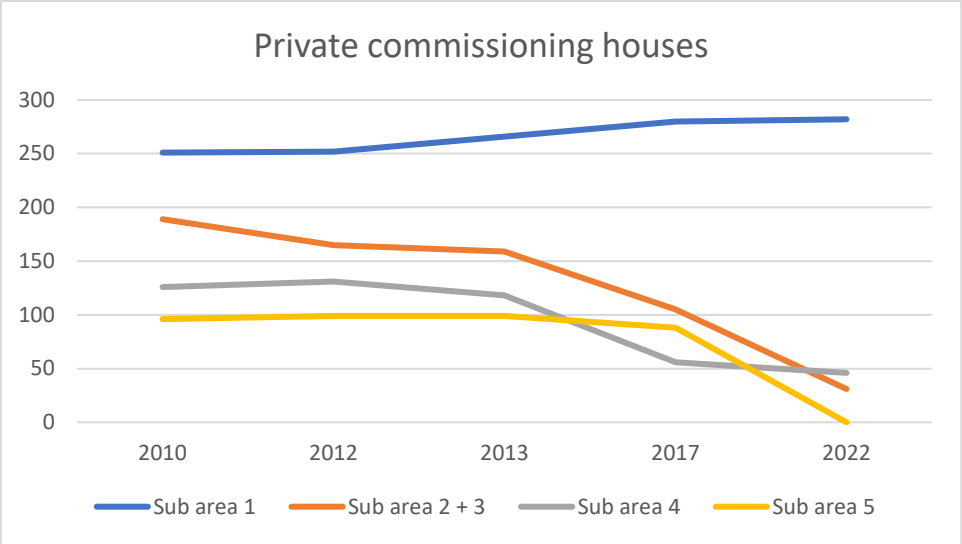

Table 23 Decrease of private commissioning development

Secondly, the development of investments and uncertainties has been effectively managed during the project. With a large part of costs realized in the initial phase, risk analyses successfully accounted for and managed these uncertainties. However, the fluctuating interest costs due to changes in project duration have posed challenges and required careful monitoring and adjustment, see Table 24.

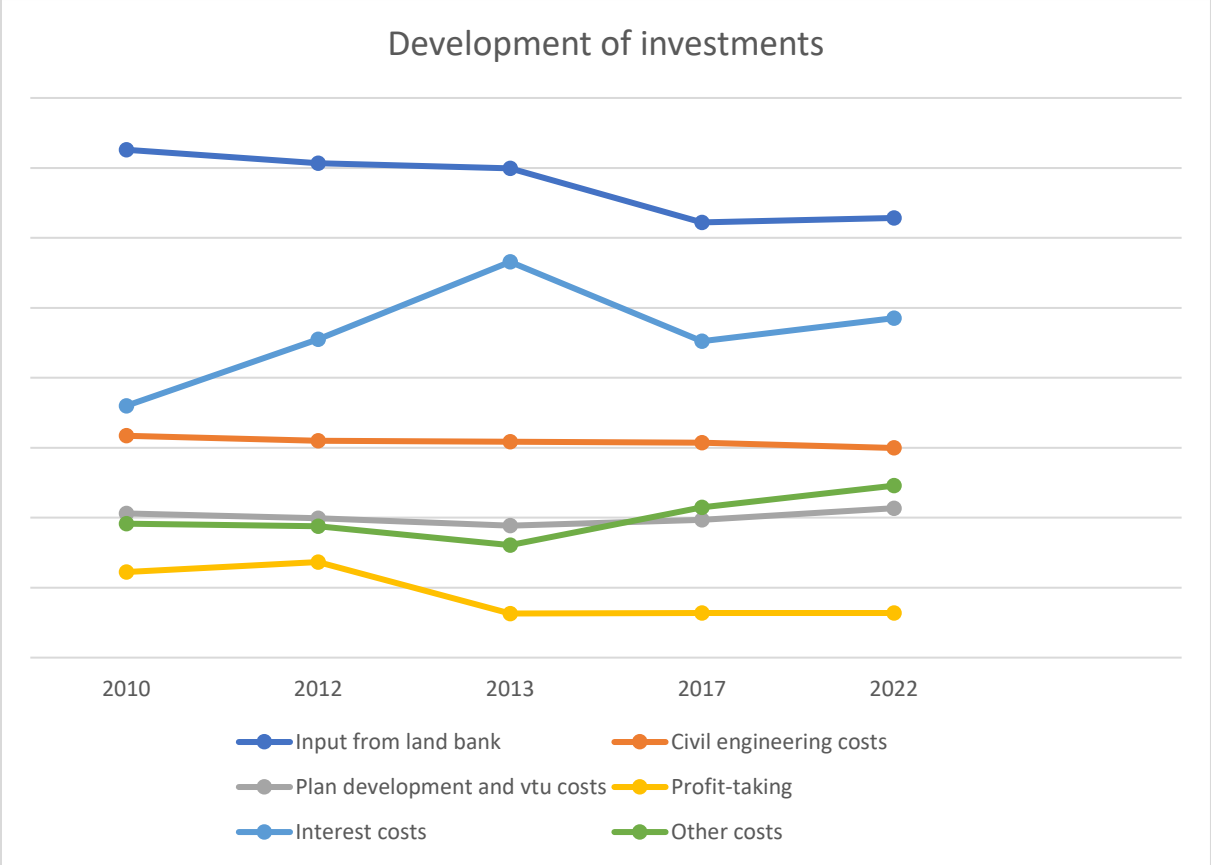

Table 24 Development of investments during the project

Thirdly, different land exploitation reports consistently included a projected revenue increase of 2%, which emerged as a crucial risk factor in sensitivity analyses. However, in practice, this revenue increase was rarely achieved. Instead, adjustments in land prices played a significant role in generating higher land values and contributing to revenue growth, see Table 25 and Table 26.

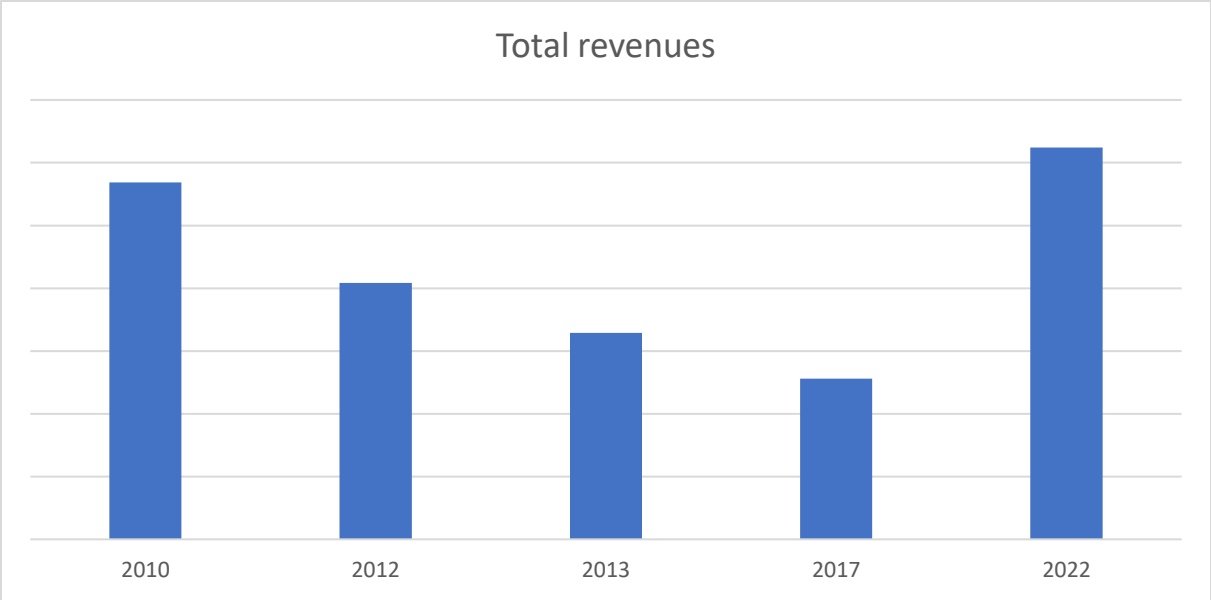

Table 25 Progression of revenues during the project

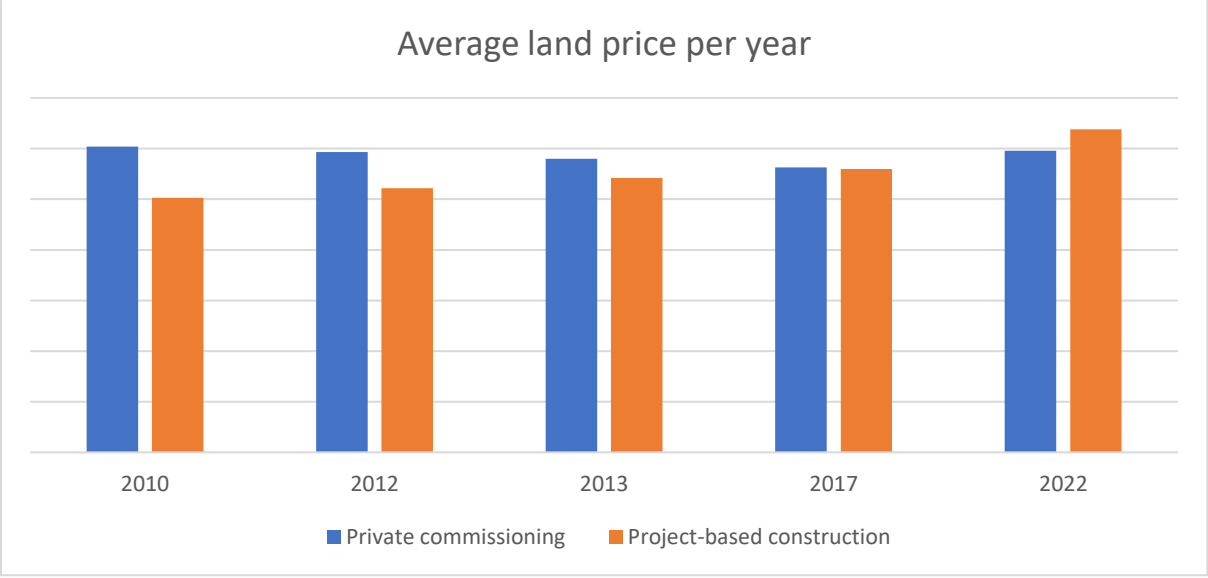

Table 26 Average land prices per year

Lastly, the progression of land prices in the context of private commissioning demonstrates that the decision to shift the development approach towards project-based construction has been favourable for the feasibility of the urban area development, see Table 27 and Table 28. This strategic change in ratios has yielded positive outcomes and enhanced the feasibility of the urban area development.

Table 27 Progression of private commissioning land price

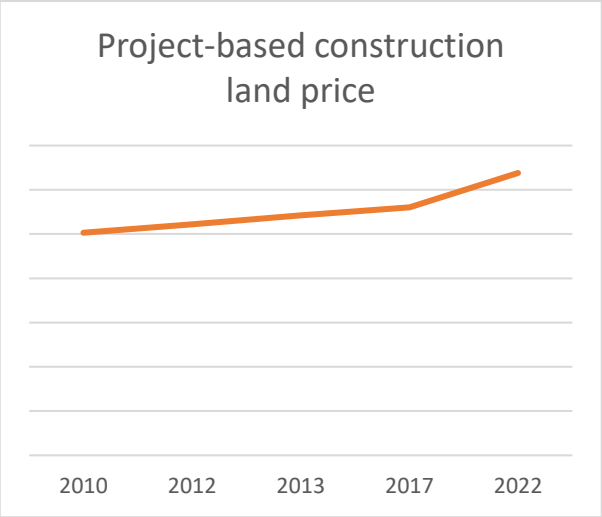

Table 28 Progression of project-based construction land price

These findings highlight the importance of continuous monitoring and adjustment in risk-management strategies to address evolving market dynamics and ensure the long-term feasibility of urban area development. By adapting development approaches, managing costs and uncertainties, and carefully considering revenue projections and land prices, public and private actors in collaborative governance can enhance the viability of land exploitation projections. Further research and analysis in this subject can contribute to the ongoing improvement of land exploitation practices and inform collaborative governance processes in urban area development.

4.2 Case study – In-depth interviews

To indicate important milestones in the collaborative governance process and the interaction between actors with regards to risk-management, all participants in the joint-venture of Vroondaal have been interviewed, see Table 29. Their perception on important milestones are identified in paragraph 4.2.1. Their perception on impactful risks and their risk-management to preserve the feasibility of Vroondaal are described in paragraph 4.2.2

Respondent	Engagement in Vroondaal
A	Consultant
B	Market parties in OC Vroondaal
C	Consultant in GEM Vroondaal
D	Market parties in GEM Vroondaal
E	Municipality in GEM Vroondaal
F	Market parties in GEM Vroondaal
G	Control body of municipality
H	Financer
I	Consultant in GEM Vroondaal

Table 29 Overview of respondents

4.2.1 Milestones

Important milestones from the document analysis have served as input and reflection for the interviews. However, identified milestones were never explicitly mentioned to avoid the researcher's bias. This paragraph describes the milestones that have emerged from the interview data.

4.2.1.1 Milestone 1: Establishment of public-private partnership with project company

Market parties (Respondent D and F) have elaborated that initially, Johan Matser and Rabo Vastgoed were selected as partners for the development of circa 1,000 plots with the intention of building villas for expats. However, the dynamics of the housing market changed, and the expected influx of expats did not occur as anticipated. Consequently, the development plans within GEM Vroondaal underwent revisions, necessitating a different program. The establishment of GEM Vroondaal during the financial crisis was notable, as many project companies were dissolved in the same period. Despite the initial disagreements over the land price obligations of VOF Madestein, the parties eventually recognized the benefits of collaboration and chose to work together in a joint-venture with project company.

The essence of a BV/CV (Besloten Vennootschap/Commanditaire Vennootschap) construction is the establishment of a separate entity outside the decision-making processes of the market parties Synchroon and BPD as well as the municipality. This separate enterprise allows for individual accountability while ensuring its autonomy, making it flexible and adaptable to steer on its success. Market parties emphasize that the primary goal of land exploitation is to profitably allocate plots. This acknowledges the importance of continuity and security. Arrangements to secure this objective have led to extensive negotiations and the

establishment of a collaboration agreement (SOK). This agreement played a crucial role in fostering successful cooperation by providing a solid contractual framework.

4.2.1.2 Milestone 2: New spatial planning vision and revision of land-use plan

Several respondents have pointed out that continuing with the old land-use plan Madestein 2001 and land exploitation would result in a long exploitation period and substantial losses. To avoid this, an alternative plan was developed to achieve better results within a reasonable timeframe. The importance of gaining approval from the municipal council for the new spatial-planning vision was emphasized by a consultant of GEM Vroondaal (Respondent I) as one of the most important reasons to be able to avoid significant financial losses. Market parties highlighted the concerns for the approval of a new land-use plan by the municipal council, as well as the advantage of municipal involvement as a financier for GEM Vroondaal. This dual responsibility of the municipality was acknowledged as a driving factor behind the municipal's decision to support the new spatial-planning vision, considering the risks involved (Respondent D).

Next to this, the municipal respondents addressed the public responsibility to add homes to The Hague's housing stock was also emphasized (Respondent E and G). The original goal of creating a second Wassenaar within the city was mentioned, but the financial crisis led to a different approach and subsequent adjustments to the project's objectives. However, the role of the municipal council in deciding how funds are allocated and the need to convince them should be based on societal impacts and not financial motivations. While the initial aim of Vroondaal was to create an attractive living environment for higher-income groups and retain higher-income groups within the municipality of The Hague, due to the low demand for spacious plots, a denser plan was implemented including more project-based developments. This also resulted in a development advantage for OC Vroondaal (Respondent B).

The challenges faced in terms of plot sales, including a decline in sales and the need for a broader program to adapt to the market, asked for an analysis which indicated that continuing at the same pace would lead to an excessive development period until 2060. The contribution of market parties was important to acquire knowledge on the plan's urban design, architecture, and housing programming. Additionally, the necessity for cost-cutting measures and the establishment of a buffer for uncertain times were discussed as essential aspects. The increased credit facility to €160 million and the identification of key risks, such as land prices and sales rates, were highlighted during the decision-making process.

4.2.1.3 Milestone 3: Post-crisis land sale and real estate development

Initially, Vroondaal had a very low exposure and unknown status amongst citizens of The Hague. This made the development process for OC Vroondaal relatively uncertain, as the main concern was whether people would be drawn to the area. Respondents in GEM Vroondaal highlighted the importance of significant marketing measures to enhance awareness and reputation of the project.

Market parties discussed the challenges faced after the financial crisis. Both Synchroon and BPD decided to work on 80 homes each to avoid conflicts and leverage the advantage of double plot sales. One of control measures was the phasing of the project that was divided into smaller stages, with 180 homes in total being split into several phases of 40 homes each. The discrepancy between the proposed annual real estate

development by BPD and Synchroon (50-75 homes) and the findings of studies suggesting that 150-200 homes per year were feasible was pointed out to the market parties by GEM Vroondaal. The respondents shared different numbers about the rate of land sale but the common thought of pressuring market parties to accelerate and achieve maximum production was acknowledged by several. Terraced houses and town houses were a good product and well-received by potential buyers. Next to this, construction activities showed that housing was really happening and a neighbourhood was created. This played a significant role in increasing confidence among potential buyers and the active marketing efforts that were employed. The shareholders even travelled to China to market 50 plots in the Chinese market to accelerate plot selling. Also, VEM Vroondaal pursued real estate development plans during that period, but it incurred additional costs. To mitigate the expenses, an agreement was reached between GEM Vroondaal and market parties to withdraw the costs in exchange for the opportunity to develop a certain number of homes.

In the early years after the crisis, the municipality, BPD and Synchroon were primarily pleased with the increased certainty and the positive outcome of the land exploitation. Extensive negotiations took place with both the municipality and GEM Vroondaal to establish agreements regarding land acquisition and financial conditions. The impact of indexation on land prices was discussed, noting that it should not significantly influence development decisions. However, why it eventually did influence the land exploitation was because the indexation was linked to project financing, as GEM Vroondaal had obtained financing, which were refinanced in 2013 based on a new terms like longer duration (until 2032) and fixed interest rates. These extra financing costs (including interest) pressured the land exploitation result.

4.2.1.4 Milestone 4: Acceleration of land sale and real estate development

Respondents of GEM Vroondaal noted that plot sales were progressing well and the target market for a villa neighbourhood was not as large as initially estimated. Production had significantly increased after the financial crisis and the municipality acknowledged that all risk parameters had indicated a positive progress. However, the need to accelerate the project also had a negative effect on the land exploitation. As the project aimed to align with market conditions, the estimation of land sales rate was adjusted in 2013 and reflected in the land exploitation. Now the market conditions were progressive, the cost implications of accelerating had a negative effect on the land exploitation due to fixed indexation agreements and interest rates. Earlier land sales incurred additional cost, so positive interest effects on the land could not be presented due to the fixed project financing. Loan agreements were already in place, limiting the ability to capture positive interest effects on the land during that period.

Additionally, the need to accelerate the project also required timely preparation of land development for construction. GEM Vroondaal acquired land and made it construction-ready before selling it to market parties at agreed-upon values. The market for villas had further diminished and affordability of terraced houses and town houses was pressured due to the increased costs for construction. OC Vroondaal explained that the market parties agreed with the municipality to shift to leasehold to keep housing affordable, as it offered more favourable interest rates compared to mortgages.

4.2.1.5 Milestone 5: (Dis)agreement on revised land price and market decline

The prosperous period of land sales and real estate development urged the municipality to express the need to appraise the land of the area. Market parties preferred to adhere to the existing agreement with the use of a fixed land price that increased annually by a predetermined percentage as agreed in the collaboration agreement of 2008 (SOK). The municipality emphasized the importance of addressing land values and the subsequent need for a reappraisal as part of its public responsibility. Eventually, a decision was made to conduct an appraisal, leading to new land price agreements with significantly higher values per square meter and a new indexation ratio.

GEM Vroondaal discussed the municipality's mandate for a reappraisal in March 2022, which led to new agreements on land prices and indexation. This resulted in a governance agreement where existing agreements with reservation contracts would follow the old agreements, while new reservations would be governed by the new appraisal system. Land pricing and indexation ratios were among the negotiated terms. Due to the current decline in market sales and high costs of acquiring land, market parties have expressed the desire to move away from the new indexation ratios. These financial considerations have led to disagreements among shareholders and possible extension of the project's timeline. An example is the introduction of the 70% threshold raised concerns about potential modifications to the plans after land development for construction. Consequently, the impact of cost implications of delaying the project or adjusting the indexation rate have been calculated into the land exploitation. With the current sales trend and disagreement among shareholder, the project's timeline may extend to 2032, resulting in a significant lower NPV value.

Lastly, with the recent increase in the canon (leasehold fee) from 0.9% to 4%, the attractiveness of leasehold has declined. Market parties addressed the current similarity between the canon and mortgage interest rates has reduced the incentive for people to opt for leasehold. This change has pressured the affordability of terraced houses and town houses and affected real estate sales in the project.

4.2.2 Risk management

Paragraph 4.2.1 has provided further information on risk-management within the collaborative governance process. This section identifies important risks from the interview data and how these risks have subsequently been managed.

4.2.2.1 Financing and interest rate

The interviews provide valuable insights into the financing and management of land in the Vroondaal project. Various considerations and strategies have been discussed by the respondents:

The total value of land in the Vroondaal project exceeded the financing limit of € 150 mln. The risk of requiring additional funding was managed in agreement with the municipality. This agreement comprised that the municipality held undeveloped land on the balance sheet of the municipality's land bank until they could be acquired by GEM Vroondaal. This approach reduced the financing burden and resulted in a lower book value. The decision to retain some lands within the municipality was driven by the uncertainty of

future developments and the need to mitigate financing risks associated with having all lands in the CV, GEM Vroondaal.

The financer has provided insights into the BV/CV structure, in which maintaining liquidity is essential for the CV's financial stability. The CV has advantages for municipalities due to their exemption from corporate income tax. The municipality retains the profits generated by GEM Vroondaal. Additionally, in a CV structure, liability is limited to the amount invested. Therefore, it is important that the CV doesn't have excessive capital to mitigate financing risks. Equity capital of participating parties is important for banks as it aligns their interests with those of the project. Municipalities in the Netherlands have high creditworthiness, and a municipal guarantee allows banks to offer lower interest. The interest rate is a crucial factor, and often rates are locked for the long-term when they are low. However, short-term financing can absorb fluctuations in the project but does not guarantee long-term funding.

The market parties differentiated between investing and financing, highlighting that financing involves debt repayment, whereas investments carry a risk of losing the initial investment. Market parties, such as Synchroon and BPD, make investments with the understanding that they may not fully recoup their funds. The respondent emphasized the balance between risk and opportunities in every investment, where higher risks can offer greater returns, and lower risks offer more stability.

Respondents of GEM Vroondaal acknowledged that the acceleration of land sales in recent years has exceeded the project's assumptions in the land exploitation of the 2013 refinancing agreements. Therefore, the project has been overfinanced. This overfinancing has its challenges, as the debt is allowed to be higher than actually is, resulting in interest payments on the excess amount. Respondent A stresses the importance of striving for a balance between debt and liquidity to ensure smooth exploitation operations.

In 2019, some of the financing contracts could be revised which has resulted in shortening the project timeline from 2032 to 2027. The revised timeline created a gap in the land exploitation as it missed out on a crucial period of indexing revenues and costs. To accommodate the shortened timeline, adjustments were made to loan agreements and the real estate development plan. Therefore, altering the sales rate and necessitating new agreements with the market parties to maintain the desired pace. The financing process stresses the interplay between equity capital and loans, while land acquisition is funded by loans and through land sales. Therefore, a consultant in GEM Vroondaal advised caution regarding accelerated repayment of loans, and stresses that accelerated repayment should only be pursued when there are sufficient liquidity is available. OC Vroondaal also reflected on the use of equity capital in a situation where the market parties held land on the balance sheet, which had been acquired from GEM Vroondaal but were not yet sold to buyers. Although it worked out well because the market conditions at that time provided more certainty that the lands would be sold, it was acknowledged that a different approach would be taken in a similar situation in the future.

4.2.2.2 Land sale rate and real estate development

Keeping up with the prognosed land sales rate was one of the important challenges that GEM Vroondaal faced. The land exploitation assumes a certain production per year. This also applied to the plots purchased

by OC Vroondaal, where a land reservation agreement was signed for each sub area. The land reservation agreement includes which plots will be purchased within a certain period of time. This pressures the progression of OC Vroondaal because otherwise market parties lose part of their production. They emphasized the importance of favourable conditions for developers, particularly in situations where market conditions deteriorate. It is crucial for developers to avoid mandatory plot acquisition obligations during market downturns. Having no obligation to build is highly significant in such cases. Additionally, OC Vroondaal discussed the importance of establishing moments for land acquisition. There was a certain tension related to permits, as the processing of the municipality often took longer than necessary. This created ongoing risks, as the land had to be acquired before the permit was granted. Ideally, the permit would have been already issued or close to irrevocable, reducing the risk if the municipality were to reject it later, but being a shareholder in GEM Vroondaal, concessions were made on these agreements.

As the market was performing well, the decision was made to accelerate the project. A consultant in GEM Vroondaal pointed out that OC Vroondaal has acquired more plots than necessary based on the guarantees provided. In regular market conditions, it would be impossible to acquire land before finalizing permits. However, as the market parties of OC Vroondaal were shareholders in GEM Vroondaal, economic deliveries in the early stages of the project, were made before the legal transfer. This highlights the importance of approaching such a development with collaborative partnerships (Respondent I). Despite uncertainties, parties have accepted the lack of absolute certainty while assuming responsibility for the land development. Respondent I quotes that "The participation and involvement of private parties in the joint-venture model are crucial for achieving these objectives" (Respondent I, personal communication, 2023). Next to this, the continuous renegotiation of OC Vroondaal's development rights was addressed, demanding higher rates. GEM Vroondaal also emphasized the preference for having a single developer in an area to ensure efficient construction flow, rather than multiple developers with differing schedules.

Lastly, the importance of creating certainty was opted by one of the market parties. He discussed the various parameters that can be adjusted, such as revising plans, accelerating the land sales rate, adding affordable housing segments, implementing leasehold agreements, allocating a certain number of homes to investors and exploring cost-saving measures for infrastructure and parking. The Monte Carlo analysis should be used as a tool for assessing risks and aligning them with opportunities. Investments are made based on beliefs in the project and the balance between risks and revenues (Respondent F).

4.2.2.3 Investments and revenues (including land price)

The land exploitation involves land sales and corresponding costs. The decision of when to proceed with land development for construction is a key consideration and the focus is constantly on determining when the project will be completed. While financial aspects are crucial for both parties, one of the market parties stated that "the societal output should be a motive for the municipality while considering the costs and potential revenues because societal output directly affects the resident of The Hague" (Respondent D, personal communication, 2023). Therefore, the municipality should steer on efficiency, effectiveness and legality of municipal policies implemented by municipal authorities. The Vroondaal project should

contribute to achieving those goals. However, this discussion has never occurred within GEM Vroondaal and their goals were primarily based on financial arguments (Respondent G).

On the contrary, a bank will only finance the financial aspects of the project, but not other social costs or benefits that do not directly relate to the project. In a declining market where revenues are pressured, cost-cutting measures are expected to be taken. The financer has conducted a sensitivity analysis on land exploitation, considering parameters such as inflation, interest rates, and increases in construction costs. The focus is primarily on costs, as estimating revenues can be challenging. Additionally, the financial feasibility is assessed by evaluating various risks, such as planning risks, pollution, environmental concerns, nitrogen emissions, and zoning issues.

Also, consistent repayment of costs and a balance between investments and revenues is essential to verify the accuracy of costs, revenues, and the timing of land development. At a certain point, the municipality observed the housing market boom and questioned whether it was justifiable, from a public responsibility standpoint, to continue selling land at such 'low' prices compared to the inflated housing prices. This prompted the need for discussions on whether these prices were still market-based. Although advantageous for market parties to acquire land at low prices, the municipality pointed out that they still benefit from the subsequent increase in the sale price. The increase in land prices resulted in a higher influx of revenues. However, now the market appears to be less favourable, considering lower land prices allows the project's process (and land sales rate) but will result in a lesser positive land exploitation.

4.2.2.4 Financial models (e.g. NPV calculation)

The NPV calculation considers current investments and revenues and assumes future investments and revenue increases, along with the interest rate to determine the final exploitation result. The risk analysis identifies key parameters that impact these calculations, including both project-specific risks and opportunities. Therefore, the NPV value should be considered in relation to the sensitivity analysis of the Monte Carlo analysis, considering that correct parameters are used as input. The power of a risk analysis lies in its updating, has a risk materialised and has the range of potential impacts on those risks changed? The land exploitation helps to assess the likelihood of those risks occurring and evaluate if they have been accurately assessed.

If the total amount of risks exceeds the number of opportunities, measures should be taken to balance risks with opportunities. This is where the equity capital of municipality and market parties comes into play. Equity can be at risk but it cannot be squandered because with a successful outcome, equity should be released at the end. Budgets and forecasts estimate and throughout such a long process, unforeseen issues arise that must be addressed to ensure project success.

4.2.2.5 Collaboration agreements and responsibilities

The joint-venture combines knowledge and experience of both parties: one representing the public interest and the other the private interest, with all the necessary technical, financial, and qualitative aspects to ensure the project's success. Despite the numerous regulations binding the public sector, a joint project company can autonomously develop and tender land. With perhaps 20 or 25 years ahead in such a project

company, along the way there is a need for continually finding the optimal balance in terms of planning, quality, and pace. Therefore, one of the market parties stretched:

> **"It is important that both parties having a comparable level of responsibility." – Respondent F**

Another important note is that the collaboration agreement (SOK) is governed by private law, but the land-use plan is governed by public law. This means that even though a solid agreement has been reached, significant objections against a land-use plan can still affect the project negatively. Therefore, throughout the process, market parties in a joint project company also rely on the municipality to carry out public law to modify land-use plans, obtain permits, and address any objections that may arise.

As both parties are responsible and accountable through the land exploitation, it allows GEM Vroondaal to assess whether the forecasts towards the end of project are accurate and while different interest and aspects are advocated, are discussed openly. This means that consequences including risks are assessed in terms of quality, time and money. According to Respondent F, considering these aspects as a whole is what makes a public-private partnership so valuable and successful. This requires flexibility of the involved parties to ensure financial feasibility.

4.3 Conclusion on empirical findings

The conclusion of this study draws upon both document analysis and in-depth interviews to provide comprehensive insights into the sub questions. By combining these research methods, a multi-faceted understanding of feasibility and risk-management in collaborative governance in the context of urban area development has been achieved. The document analysis allowed for an examination of key milestones in the collaborative governance process and the identification of risks that substantially pressured feasibility. On the other hand, the in-depth interviews provided valuable perspectives from actors involved in the collaborative governance agreements, shedding light on how these risks were managed. Through the integration of these research approaches, this conclusion paragraph addresses the sub research questions.

4.3.1 SQ2: What milestones in the collaborative governance process of urban area development are important with regards to risk-management?

4.3.1.1 Document analysis

In the collaborative governance process of urban area development, several milestones emerged as significant in terms of risk-management, as revealed through the document analysis. The first milestone, the establishment of a joint venture with project company GEM Vroondaal in 2010, played a crucial role in managing and sharing risks associated with urban area development. The municipality attracted financing and received guarantees from market parties. Additionally, the municipality held first rights of mortgage and pledge on all acquired assets of GEM Vroondaal, mitigating potential financial risks. To limit costs, investments in land acquisition were restricted, and cost reduction measures were implemented on preparation activities.

The second milestone occurred in 2011 with the initiative 'Vroondaal Revisited' and revised land exploitation, aimed at reducing risks by increasing plot sales, promoting more project-based construction, and encouraging private commissioning from a broader target group. The potential risk of delay in land sales was recognized, but it was balanced against the potential profit in real estate exploitation (VEM Vroondaal) estimated at €20 mln (Gemeente Den Haag, 2011b). In 2012, milestone 3 involved a correction on profit-taking by implementing cost-cutting measures to create a more robust land exploitation. This adjustment resulted in a reduction of profit-taking by €12 mln, indicating a proactive approach to managing financial risks and a balanced financial model of investments, revenues and risks.

In 2014, milestone 4 was marked by the approval of a new land use plan and land exploitation plan by the city council. This milestone was significant as it addressed policy risks associated with the decision-making process. The accelerated land development in 2018 (milestone 5) was influenced by market demands, allowing for accelerated land sales and real estate developments. This milestone demonstrates the adaptability of the decision-making process to market conditions, reducing potential risks associated with delays and uncertain market dynamics. In the same year, milestone 6 involved the termination of the joint real estate exploitation company, VEM Vroondaal. While the document analysis did not provide specific details regarding risk management, it could suggest optimizing development outcomes, even though there was a potential profit of € 20 mln.

4.3.1.2 In-depth interviews

Several milestones in the collaborative governance process in the context of this urban area development were identified as crucial with regards to risk management, as revealed through the in-depth interviews. The first milestone involved the establishment of a joint venture with a project company, GEM Vroondaal. The dynamics of the housing market changed, leading to revisions in the development plans and a shift in program. The joint-venture agreement allowed for shared accountability and autonomy, with the municipality holding first rights of mortgage and pledge on acquired assets, ensuring financial security and risk-sharing. A collaboration agreement (SOK) played a significant role in fostering successful cooperation by providing a solid contractual framework.

The second milestone focused on the development of a new spatial planning vision and revision of the land-use plan. The need to avoid substantial losses and achieve better results within a reasonable timeframe led to the development of an alternative spatial planning vision and land-use plan. Approval from the municipal council for this plan was critical to avoid financial losses and securing municipal support. The involvement of the municipality as a financier and the responsibility to add homes to the housing stock further emphasized the importance of this milestone. Adjustments in the project's objectives and the implementation of a denser plan with more project-based developments reflected the market dynamics and the need to adapt to changing circumstances.

The third milestone addressed the post-crisis land sale and real estate development phase. Marketing strategy was essential to enhance awareness and reputation, given the initial uncertainty of the project. Phasing the project into smaller phases and aligning with market conditions played a significant role in increasing confidence among potential buyers. Cost-cutting measures, risk analysis, and renegotiation of agreements were crucial aspects during this milestone. The refinancing of project loans and the establishment of a buffer for uncertain times were also highlighted.

The fourth milestone focused on the acceleration of land sale and real estate development. Market demands and the need to align with changing conditions prompted the adjustment of land sales rates and timely land development for construction. The fixed indexation agreements and interest rates, along with increased construction costs, posed challenges to the land exploitation. Control measures such as phasing, intensified marketing efforts, and exploring new markets were implemented to maximize production and boost confidence among potential buyers.

The fifth milestone addressed (dis)agreement on revised land prices and market decline. Appraisal of land prices and subsequent negotiations on land prices and indexation were critical in managing financial considerations. The impact of cost implications, delays, and adjustment of indexation rates were calculated into the land exploitation. The introduction of a higher threshold and changes in leasehold fees also had implications for affordability and affected real estate sales.

4.3.2 SQ3: What risks do substantially pressure the feasibility of urban area development?

4.3.2.1 Document analysis

Several risks have substantially pressured the feasibility of urban area development, as indicated through the document analysis:

- Revenue increase: Potential uncertainty and delay in realizing expected revenues and deviation from anticipated revenue growth percentages in the land exploitation.
- Cost increase: Potential increase in project costs and their impact on financial feasibility.
- Cost of land development: Potential increase in costs related to land development activities.
- Plan development costs: Expenditures associated with the planning and development of the project.
- Interest rate: Fluctuations in interest rates and because of uncertainty in financing agreements.
- Land price: Decline in average land prices, affecting the financial aspects of the project.
- Land sales rate: Market demand and the ability to achieve expected sales rates.
- Market decline: Downturns or changes in the real estate market that affect sales and profitability.

4.3.3 SQ4: How are these risks managed (within collaborative governance agreements)?

4.3.3.1 Document analysis

Based on the information provided in the document analysis, risk management can be categorized as follows:

- Cash-flow driven land exploitation: Implementation of a cash-flow driven approach where costs are incurred only if they are matched by short-term revenues.
- Optimizing civil costs: Adjustments in the choice of materials, special investments, and compliance with the Public Space Manual to reduce civil costs.
- Optimizing financing costs: Postponement of maximum financing requirement, securing longer-term financing agreements, and reducing the risk of higher financing costs.
- Marketing: Increased investment in area promotion activities to enhance brand awareness among the target group and increase the likelihood of meeting or exceeding the adopted land sales rate.
- Accelerated land development: Proactive preparation of land for construction and housing to meet the high demand and offer ready-to-build land in a timely manner.
- Issuing strategy: Broadening the supply of project-based housing, including plots at an average of 400 m^2, and agreeing on purchase guarantees with third parties to increase land sales.
- Risk reserve: Inclusion of a risk reserve in the land exploitation to absorb the financial effects of short-term risks.

4.3.3.2 In-depth interviews

Risk management within the collaborative governance agreements of the Vroondaal project has been addressed through the interviews conducted with actors. The outcomes can be categorized as follows:

Financing and interest rate:

- Reducing the financing limit by keeping undeveloped lands on the balance sheet of the municipality's land bank until GEM Vroondaal acquires the land.
- Ensuring financing capacity by financing agreements for short term and long term.
- Balancing debt and liquidity to ensure land exploitation operations.
- Adjusting loan agreements and the real estate development plan to accommodate a shortened project timeline.
- Balancing equity capital and loans to align interests and secure favourable interest rates.

Land sale rate and real estate development:

- Managing land acquisition obligations by allowing flexibility for developers to avoid mandatory plot acquisition during market downturns.
- Establishing moments for land acquisition and mitigating risks associated with delays in permit processing.
- Accelerating land development for construction to meet the projected land sales rate.
- Maintaining collaboration and open communication among stakeholders to address challenges and renegotiate development rights.

Investments and revenues (including land price):

- Ensuring consistency in cost repayment and balancing investments and revenues.
- Discussing the market-based nature of land prices and their impact on the project's financial feasibility.
- Adapting to changing market conditions by adjusting land prices and expanding the supply of project-based housing.

Financial models (e.g. NPV calculation):

- Assessing risks and opportunities through a comprehensive risk analysis.
- Maintaining a balance between risks and opportunities by utilizing equity capital.
- Updating risk assessments and adjusting parameters to ensure accurate NPV calculations.

Collaboration arrangements and responsibilities:

- Leveraging the knowledge and experience of both public and private actors.
- Recognizing the interplay between private law (collaboration agreement) and public law (land-use plan) in project governance.
- Collaborating closely with the municipality to address legal requirements, obtain permits, and modify land-use plans as necessary.

5 Conclusion

This chapter includes the research findings of both theoretical and empirical research. It answers the main research questions and appoints the research problem and aim stated at the beginning of this study.

5.1.1 Research outcome

The aim of this study was to investigate the research question: *How do public and private actors in collaborative governance steer on feasibility in the context of urban area development?* Because of the complexity of urban area development and involvement of multiple actors, interdisciplinary knowledge, and diverse interest, collaborative governance approaches have appeared to be successful. However, the need to explore how public and private actors in collaborative governance effectively steer on feasibility urban area development projects was raised by the research problem. Feasibility, in this context, referred not only to the practicality and viability of proposed initiatives of urban area development, but primarily focussed on how actors assess feasibility in the collaborative governance process. By examining the collaborative governance process, important milestones were identified, focussing on risks and risk-management strategies within collaborative governance agreements. The research contributes to pragmatic insights in collaboration agreements that can be difficult to obtain due to the long project duration and confidential nature of the agreements.

5.1.2 Conclusion on research questions

Actors involved in collaborative governance steer on the feasibility of urban area development through a combination of collective decision-making, joint risk-management, and effective collaboration. The analysis of documents and interviews provided valuable insights into the milestones, risks, and risk-management strategies employed in the Vroondaal project, an urban area development in The Hague.

5.1.2.1 SQ2: What milestones in the collaborative governance process are important with regards to risk-management?

The collaborative governance process was marked by several significant milestones that enhanced risk-management strategies. These milestones included the establishment of a joint venture, revisions of a new spatial planning vision, approval of new land-use plan, the acceleration of land sales and real estate development, and negotiations on land price agreements. These milestones demonstrated the adaptability and responsiveness of decision-making in the collaborative governance process to market conditions, ensuring financial feasibility and mitigating potential risks.

The milestones in the collaborative governance process were not determined by the collaborative governance process itself, as the milestones originated from external factors, the context of urban area development. As described by Adams and Tiesdell (2012), steering on feasibility is thus a problem-solving activity. Collaborative governance can be used as an approach for public and private actors to address and identify risks that arise from the context of urban area development. These risks are influenced by various factors such as market conditions, regulatory requirements, financial constraints, and societal demands. Collaborative governance provides a framework for public and private actors to actively engage in problem-solving and decision-making, ensuring successful project outcomes.

5.1.2.2 SQ3: What risks do substantially pressure feasibility in the context of the urban area development?

Risks have been identified that substantially pressured the feasibility of urban area development by applying sensitivity analyses to the risk factors. Sensitive parameters were likely to impact the land exploitation result. These risks encompassed factors such as revenue increase, cost increase, cost of land development, interest rate fluctuations, land price decline, and land sale decline.

Risk	Description
Revenue increase	Potential uncertainty and delay in realizing expected revenues and deviation from anticipated revenue growth percentages in the land exploitation.
Cost increase	Potential increase in project costs and their impact on financial feasibility.
Cost of land development	Potential increase in costs related to land development activities.
Plan development costs	Expenditures associated with the planning and development of the project.
Interest rate	Fluctuations in interest rates and because of uncertainty in financing agreements.
Land price	Decline in average land prices, affecting the financial aspects of the project.
Land sale	Market demand and the ability to achieve expected sales rates.
Market decline	Downturns or changes in the real estate market that affect sales and profitability.

5.1.2.3 SQ4: How are these risks managed (within collaborative governance agreements)?

Risk-management strategies included cash-flow driven land exploitation, optimizing civil costs, optimizing financing costs, marketing efforts to increase brand awareness, accelerated land development, issuing strategies to broaden the supply of project-based housing, and the inclusion of a risk reserve in the land exploitation. The inclusion of risk reserves in the land exploitation provided a buffer to absorb unforeseen financial effects. These strategies aimed to mitigate financial risks, ensure cost-effectiveness, and maximize land sales and revenues.

The collaborative governance agreements among public and private actors of in this case the joint-venture, were crucial in steering the feasibility of this urban area development. Their responsibility and commitment to the success of the joint project company GEM Vroondaal provided a framework for shared accountability and autonomy of the enterprise. The municipality played a significant role in financial security and risk-sharing but also market parties have taken additional risks in their real estate development agreements to ensure the feasibility of the urban area development. Therefore, agreements in the collaborative governance process have ensured successful project outcomes and provided a way of steering on feasibility in this urban area development.

Risk-management strategy	Description
Financial models	The importance of assessing risks and opportunities through comprehensive risk analysis and maintaining a balance between investments and opportunities by utilizing equity capital. Updating risk assessments and adjusting parameters to ensure accurate financial modelling (such as Net Present Value calculations) were identified as essential for effective risk management.
Financing and interest rate	Measures such as reducing the financing limit and ensuring financing capacity through short-term and long-term agreement. Balancing debt and liquidity, adjusting loan agreements, and aligning equity capital and loans were also highlighted as important factors.
Land sale rate and real estate development	Managing land acquisition obligations, establishing moments for land acquisition, and accelerating land development were identified as risk mitigation strategies. Collaboration and open communication among stakeholders were emphasized as crucial for addressing challenges and renegotiating development rights.
Investments and revenues (incl. land price)	Maintaining consistency in cost repayment, discussing the market-based nature of land prices, and adapting to changing market conditions were key considerations. Adjusting land prices and expanding the supply of project-based housing were identified as strategies to address market dynamics.
Collaboration agreements and responsibilities	Leveraging the knowledge and experience of both public and private partners, recognizing the interplay between private law and public law in project governance, and collaborating closely with the municipality for legal requirements, permits, and modifications to land-use plans were emphasized as critical factors.

5.1.2.4 Main research question: How do public and private actors in collaborative governance steer on feasibility in the context of urban area development?

The research findings have indicated that public and private actors in collaborative governance steer on feasibility in the context of urban area development through their collaborative governance process in which decision-making for addressing and identifying risks in the context of urban area development, risk-management strategies, and effective collaboration agreements are crucial. The integration of knowledge, sharing resources, and risk allocation through collaborative governance agreements between public and private actors allowed for adaptability that was crucial for effective risk-management.

5.1.3 Synthesis on theoretical and empirical research

Both theoretical findings and empirical findings substantiate that the identification of risks is crucial for effective risk management in any project, including urban area development. In the context of urban area

development, risk identification involves the systematic process of recognizing and documenting risks, considering the various dimensions of urban area development, such as economic, political, social and environmental aspects. Through risk identification, stakeholders can address and anticipate on potential challenges to ensure feasibility and successful project outcomes.

To properly identify risks, stakeholders should gain a comprehensive understanding of potential challenges and uncertainties that may impact the feasibility of the project. This necessitates a collaborative approach on risk identification, and asks for effective communication by openly discussing and sharing identified risks. Hence, stakeholders can align their interests, expectations, perspectives, and responsibilities, enhancing a collaborative approach to risk management. This promotes transparency, trust, and shared understanding among public and private actors in collaborative governance processes, enabling them to collectively mitigate risks and ensure project success, a feasible urban area development.

The empirical findings have provided insights that ask for reflection on the theoretical perspective on sub question 1: *What is feasibility in the context of urban area development?* This addresses a new approach for how the field of urban area development should understand and assess feasibility, see Figure 18.

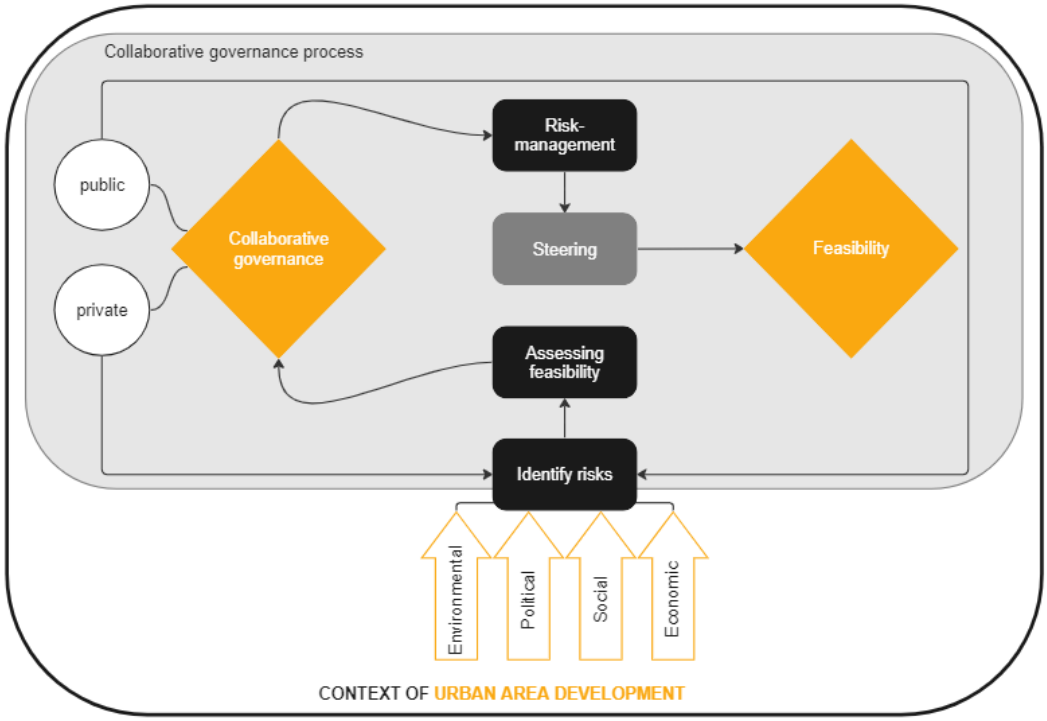

Figure 18 Feasibility in the context of urban area development (Own illustration)

Through collaborative governance processes, public and private actors can collectively identify, analyse and manage risks associated with urban area development. By sharing knowledge and resources, stakeholders can develop effective risk-management strategies. This collaborative governance approach enhances feasibility in the context of urban area development by minimizing uncertainties and maximizing opportunities. Therefore, feasibility in the context of urban area development is an outcome of collaborative governance efforts. Collaborative governance enables shared decision-making and effective risk management, ultimately leading to the successful realisation of urban area development initiatives.

6 Discussion and recommendations

The chapter discusses research results highlighting the meaning, importance, and relevance of the findings in relation to the literature study and the overall conclusion of the research.

6.1.1 Reflection on results and implications

The research results shed light on the challenges and complexities involved in collaborative governance processes and steering urban area development projects towards feasibility. The case study analysis of the Vroondaal project revealed that financial feasibility is a key component of decision-making and often serves as a primary consideration in urban area development. The findings align with existing literature that emphasizes the significance of financial viability in project assessment and decision-making (Heurkens et al., 2020; Franzen et al., 2011).

However, the research results also demonstrate that assessing financial feasibility in long-term urban area development projects is inherently challenging due to the uncertainties and risks associated with such projects. The reliance on a financial models, such as a fixed land exploitation result or net present value calculation for assessing financial feasibility throughout the project proved insufficient, as it did not capture the potential negative impact of key risk factors such as cost and revenue increases, land prices, land sales rate, and interest costs. This finding aligns with the literature that emphasizes the need for robust risk analysis and management in urban area development (Liu et al., 2017; Dey, 2001). Also, the Vroondaal project showed that the positive return that Parli (2001) links to financial feasibility does not have to provide an immediate positive cash flow in order to be accepted as financially feasible. The revision of the land use plan indicated that initial use of the land, a villa neighbourhood, was unable to produce a positive return. Nevertheless, the urban area development was still accepted as financially feasibility as public and private actors in collaborative governance shared the believe of generating a positive return.

The importance of risk management strategies in collaborative governance arrangements is evident from the research results. The findings highlight the significance of managing risks related to financing, land sales rate, real estate development, and investments. Strategies such as cash-flow driven land exploitation, optimizing civil costs, and marketing efforts were employed to mitigate risks and enhance the feasibility of the Vroondaal project. Also agreements with the market parties regarding land sales sometimes involved increased risk, but because market parties shared the interest of accelerating because of their interest in the joint project company, these conditions were accepted. These risk-management strategies align with the literature on collaborative governance, which emphasizes the need for adaptive and flexible approaches to address uncertainties and mitigate risks in urban area development (Ansell & Gash, 2007).

Furthermore, the research results reveal the interplay between public and private law in collaborative governance arrangements, presenting a tension between financial feasibility and legal obligations. The findings indicate that while collaboration agreements and contractual arrangements are crucial for successful collaboration, they may not directly align with policy considerations. This aligns with the literature on collaborative governance, which highlights the complex interplay between legal frameworks and financial considerations in urban development projects (Hendriks, 2014).

In conclusion, the research results contribute to the understanding of how public and private actors in collaborative governance steer on feasibility in the context of urban area development. The findings highlight the challenges of assessing financial feasibility in long-term projects and the importance of risk-management strategies. They emphasize the need for adaptive approaches, collaboration, and the integration of financial considerations and risk management for decision-making in collaborative governance processes. The findings support the overall conclusion that effective steering in collaborative governance requires a comprehensive understanding of feasibility, risk management, financial considerations and legal obligations.

6.1.2 Recommendations for practice and further research

Conducting comparative studies across multiple case studies or different collaborative governance agreements can provide a broader understanding of the factors influencing feasibility and risk management. Comparisons between different projects, contexts, and governance models can shed light on the effectiveness of various strategies and approaches. Examining the long-term effects and sustainability of collaborative governance arrangements in urban area development is crucial. Therefore, assessing the performance of projects over extended periods can help identify risk factors that contribute to long-term success or failure and inform future decision-making in collaborative governance processes. However, the availability of accurate and reliable data is crucial for assessing feasibility and risk management in urban area development. It provides the information for both researchers and practitioners. Risk analysis, financial models, decision-making, and performance monitoring on successful outcomes is important data to assess feasibility. Accurate and reliable data enables stakeholders to make informed decisions, develop effective risk management strategies, and ensure successful project outcomes.

6.1.3 Limitations

The research has several limitations that should be acknowledged. First, the study is based on a single case study, focusing on the Vroondaal project which consists of a joint venture with project company. Even though it provides insight into actor dynamics between public and private actors, it limits generalisation of the research findings to other collaborative governance approaches in urban area development. The specific characteristics of the Vroondaal project and the joint venture structure may not fully represent the diversity of collaborative governance models in different contexts. Second, the research primarily relies on qualitative data gathered through document analysis and in-depth interviews. While these methods provide valuable insights into the perspectives and experiences of actors involved in the Vroondaal project, they may be subject to biases and limited by the scope of the information available. Additional case studies could have provided a more comprehensive understanding of the topic and allowed for broader generalizations.

Furthermore, the research focuses on the feasibility and risk management aspects of collaborative governance in urban area development. While these are crucial elements, other dimensions of collaborative governance, such as stakeholder engagement are not extensively explored. Future research could consider a more holistic approach to studying collaborative governance, incorporating a wider range of variables and perspectives. Despite these limitations, the research serves as a starting point for understanding how actors assess the feasibility of urban area development and steer on successful outcomes within collaborative

governance arrangements. The findings provide insights into the challenges, strategies, and outcomes related to financial feasibility and risk management in a specific context. This can inform further research in collaborative governance in urban area development by expanding the scope to include different types of projects, governance models, and stakeholders. Comparative studies across multiple cases or quantitative analyses could help validate and extend the findings from this research, contributing to a more comprehensive understanding of collaborative governance dynamics in urban development.

6.1.3.1 What could not be found in the research?

In this research, there were certain aspects that could not be thoroughly examined due to limitations in data availability and clarity. One such aspect is the effectiveness of risk reserves included in the land exploitation. Unfortunately, it was challenging to investigate their impact as it was unclear and inconsistent whether and to what extent these reserves were accounted for or utilized.

Another aspect that could not precisely be examined is the total risk reserve. Although the sensitivity analysis identified substantial risks that influenced feasibility, there was no clear indication of the required scale of the risk reserve. It would have been fascinating to examine whether these risks fell within the equity capital provided by financial guarantees of the municipality and market parties, and the implications for assessing feasibility.

Furthermore, a significant decrease in the balance sheet was observed in the 2012 land exploitation report compared to 2010. Some risks from the 2012 land exploitation were removed from the joint venture entity (GEM Vroondaal) and transferred as profit margins to the project development entity (VEM Vroondaal). Exploring this interaction between independent entities would have been insightful, but unfortunately, it was not feasible within the scope of this research.

Despite these limitations, the findings and discussions in this study still provide valuable insights into collaborative governance and risk management in urban area development. It is important to acknowledge these gaps in knowledge and highlight the need for further research to delve deeper into these areas, considering the complex dynamics of financial reserves, risk assessment, and the interaction between different entities involved in land exploitation projects. By addressing these limitations, future studies can contribute to a more comprehensive understanding of risk management strategies and feasibility assessment in collaborative governance processes.

7 Reflection

This chapter provides a critical analysis of the results of the research conducted, focusing on the research design, methodology, and the effectiveness of the chosen approach. It addresses how and why the approach was selected and to what extent has reached the desired outcomes in terms of product, process, and planning.

7.1 Results and design

7.1.1 Product

The research conducted in this study focused on the concept of feasibility in the context of urban area development and has highlighted the limitations of relying solely on a conclusive business case to assess feasibility. The complexity of urban area development projects makes it challenging to capture all the nuances and uncertainties within business case, and the long-term nature of these projects introduces a level of uncertainty that cannot be fully accounted for in a net present value calculation.

Instead, the research has emphasized the importance of collaborative governance agreements in managing risks and assessing feasibility. These agreements serve as a framework for decision-making and risk management among the participating parties. The shared financial responsibility of both parties creates a strong incentive to proactively manage risks and ensure feasibility. By recognizing the significance of collaborative governance agreements and their role in risk management, stakeholders involved in urban area development projects can make informed decisions. Moreover, it challenges the conventional thinking of feasibility as a conclusive business case and emphasizes the need to consider the broader context and dynamics of collaborative governance.

7.1.2 Process

Throughout the process of this research, defining the research concept of feasibility in the context of urban area development has been challenging. The complexity of urban area development and its multilateral context presented difficulties in defining a concise research framework. It was agreed upon in the feedback sessions that the research framework would develop along the process and be guided by the information provided by the document analysis and in-depth interviews. However, this also resulted in a lack of focus, as the extensive range of documents and sources examined covered various aspects of urban area development. This challenge was addressed during the in-depth interviews, providing clarity and facilitating a more comprehensive understanding of the research concepts.

A parallel approach of conducting the document analysis and in-depth interviews could have been beneficial. This would have allowed for a more iterative and interconnected process, where the findings from each method could inform and enhance the other. By simultaneously engaging in both research methods, it would have been possible to identify gaps, gather insights, and refine the research focus in a more dynamic manner. However, it is important to acknowledge that the use of in-depth interviews also introduces a potential bias in perception. The subjective viewpoints and perspectives of the interviewees may have influenced the interpretation and prioritization of certain elements within the research.

7.1.3 Planning

The period between P4 and P5 has given the opportunity to further examine the interdependencies between the research concepts and reflect on earlier findings. The findings from the empirical research in this study have provided valuable insights to reflect on the theoretical research conducted. By comparing the empirical data with the theoretical assumptions and propositions, researchers can assess the extent to which the theoretical concepts align with the practical context of collaborative governance and feasibility in urban area development. Any discrepancies or divergences between the empirical findings and the theoretical expectations can prompt a revaluation of the theoretical framework and potentially lead to adjustments or refinements. This has completed the research cycle.

7.2 Choice of method

7.2.1 Research design

The research design and methodology were selected to address the research objectives of assessing feasibility and risk management in collaborative governance of urban area development. The chosen approach incorporated a document analysis and in-depth interviews. Feasibility assessment plays a crucial role in the decision-making process of urban area development, as it determines the viability and potential success of a project. However, academic literature primarily emphasizes the financial models of feasibility. The process of steering on feasibility, considering the dynamic and complex nature of collaborative governance and the assessment of feasibility, has received relatively limited attention. Therefore, a document analysis allowed for the examination of key milestones and risks, while interviews provided valuable insights from actors involved in the collaborative governance agreements.

7.2.2 Limitations

All actors involved in the collaborative governance agreements have been included in the research through interviews. This allowed for a comprehensive view of the difficult topic and enriched the analysis with contextual understanding. This is one of the strengths of the research design. However, it is important to acknowledge some limitations. Firstly, the research was limited to a single case study, focusing on a joint venture project. While this allowed for an in-depth examination of a specific context, the findings may not be generalizable to other collaborative governance arrangements in urban area development. Future research should consider conducting comparative studies or exploring additional case studies to enhance the generalizability of the findings.

7.3 Predefined questions

7.3.1 What is the relation between your graduation project topic, your master track (MBE), and your master programme (MSc AUBS)?

This research topic aligns closely with the core objectives and competencies of the master track of MBE, which aims to provide students with the knowledge and skills to effectively manage complex urban

development projects. The interdisciplinary nature of urban area development draws upon knowledge from different fields, including the specialisms of MSc AUBS.

7.3.2 How did your research influence your design/recommendations and how did the design/recommendations influence your research?

During the research process, the data collection and data analysis provided valuable insights into the perception of feasibility and risk factors. This iterative process has improved the research design by refining the research concepts and interconnections.

7.3.3 How do you assess the value of your way of working (your approach, your used methods, used methodology)?

The methodology used in this research, which combined literature study and qualitative data from documents and in-depth interviews, was appropriate for the research objective. The data provided examination of key milestones, risks and agreements and allowed for practical recommendations that were the aim of this research.

7.3.4 How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

The research provides valuable insights and empirical evidence that can enrich academic discussions and understanding of feasibility in urban area development and collaborative governance agreements. Thus complementing a gap in academic literature. Its relevance to society lies in enhancing the understanding of how actors work through the complexities of collaborative governance which are often unknown or remain secret.

7.3.5 How do you assess the value of the transferability of your project results?

The transferability of project results is focused on applicability. The results should be considered in similar collaborative governance structures that face challenges in assessing feasibility in the context of urban area development. The involvement of actors throughout the research process and the extent to which their perspectives were taken into account are valuable to assess feasibility, actor engagement, collaboration agreements and risk management and this can enhance the transferability of the results.

7.3.6 How do you think the results of the research should be put to practice?

The results of the research can guide urban planners, government authorities, developers, investors and other actors in urban area development by implementing collaborative governance structures and strategies and assessing feasibility. Also, this exploratory research can be used to build upon academic research on the phenomenon of feasibility in urban area development to further define this under-researched problem.

8 References

Adams, D., & Tiesdell, S. (2012). *Shaping Places: Urban Planning, Design and Development* (1st ed.). Routledge.

Ansell, C., & Gash, A. (2007). Collaborative Governance in Theory and Practice. *Journal of Public Administration Research and Theory*, *18*(4), 543–571. https://doi.org/10.1093/jopart/mum032

Barrett, B., Horne, R., & Fien, J. (2016). The Ethical City: A Rationale for an Urgent New Urban Agenda. *Sustainability*, *8*(11), 1197. https://doi.org/10.3390/su8111197

Blaikie, N., & Priest, J. (2019). *Designing Social Research: The Logic of Anticipation*. Wiley.

Braster J. F. A. (2000). *De kern van casestudy's*. Van Gorcum.

Bregman, A., Koning, A., & De Win, R. (2017). *Juridisch Handboek Gebiedsontwikkeling (2e druk)*. Instituut voor Bouwrecht.

Bruil, I., Hobma, F., Peek, G., & Wigmans, G. (2004). *Integrale gebiedsontwikkeling: Het stationsgebied 's Hertogenbosch*. Uitgeverij SUN.

Buitelaar, E., & Bregman, A. (2016). Dutch land development institutions in the face of crisis: Trembling pillars in the planners' paradise. *European Planning Studies*, *24*, 1281–1294. https://doi.org/10.1080/09654313.2016.1168785

Bryman, A. (2016). *Social Research Methods*. Oxford University Press.

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The Use of Triangulation in Qualitative Research. *Oncology Nursing Forum*, *41*(5), 545–547. https://doi.org/10.1188/14.onf.545-547

Chen, Y. (2022). Financialising urban redevelopment: Transforming Shanghai's waterfront. *Land Use Policy*, *112*, 105126. https://doi.org/10.1016/j.landusepol.2020.105126

Clive, M. J. W. (2014). Financial feasibility studies for property development: theory and practice. *Property Management*, *32*(4), 362–363. https://doi.org/10.1108/PM-05-2014-0025

De Zeeuw, W.C.T.F. (2018). *Zo werkt gebiedsontwikkeling: handboek voor studie en praktijk*.

Demirag, I., Khadaroo, I., Stapleton, P., & Stevenson, C. (2012). The diffusion of risks in public private partnership contracts. *Accounting, Auditing & Accountability*, *25*(8), 1317–1339. https://doi.org/10.1108/09513571211275498

Dey, I. (1993). Qualitative Data Analysis. Routledge.

Dey, P. K. (2001). Integrated approach to project feasibility analysis: a case study. *Impact Assessment and Project Appraisal*, *19*(3), 235–245. https://doi.org/10.3152/147154601781766989

Diener, E., & Crandall, R. (1978). *Ethics in Social and Behavioral Research*. University of Chicago Press.

Doloi, H. (2009). Relational partnerships: the importance of communication, trust and confidence and joint risk management in achieving project success. *Construction Management and Economics*, *27*(11), 1099–1109. https://doi.org/10.1080/01446190903286564

Dworkin, S. L. (2012). Sample Size Policy for Qualitative Studies Using In-Depth Interviews. *Archives of Sexual Behavior*, *41*(6), 1319–1320. https://doi.org/10.1007/s10508-012-0016-6

Eisenfuhr, F. (2011). *Decision making*. New York, NY: Springer.

Emerson, K., Nabatchi, T., & Balogh, S. (2011). An Integrative Framework for Collaborative Governance. *Journal of Public Administration Research and Theory*, *22*(1), 1–29. https://doi.org/10.1093/jopart/mur011

Finch, J. H., & Casavant, R. (1996). Highest and best use and the special purpose property. *The Appraisal Journal, 64*(2), 195. https://www.proquest.com/scholarly-journals/highest-best-use-special-purpose-property/docview/199930931/se-2

Franzen, A., Hobma, F., Jonge, D. H., & Wigmans, G. (2011). *Management of Urban Development Processes in the Netherlands: Governance, Design, and Feasibility* (3rd None ed.). Techne Press.

Fung, A., & Wright, E. O. (2001). Deepening Democracy: Innovations in Empowered Participatory Governance. *Politics &Amp; Society*, *29*(1), 5–41. https://doi.org/10.1177/0032329201029001002

Gemeente Den Haag. (n.d.). *Madestein - Vroondaal: Toelichting Bestemmingsplan*. Retrieved January 22, 2023, from https://www.planviewer.nl/imro/files/NL.IMRO.0518.BP0252AMadeVroondl-50VA/t_NL.IMRO.0518.BP0252AMadeVroondl-50VA.html

Gemeente Den Haag. (2001). Bestemmingsplan Madestein 2001. In *Den Haag Raadsinformatie* (RIS. 86871). Retrieved June 21, 2023, from https://denhaag.raadsinformatie.nl/document/9799137/1/086871+BESTEMMINGSPLAN+MADESfEIN+2+001+NIEUW+MADESTEIN

Gemeente Den Haag. (2011a). *Jaarverslag 2010*. Den Haag Raadsinformatie. Retrieved May 15, 2023, from https://denhaag.raadsinformatie.nl/document/3316317/1/RIS180308a

Gemeente Den Haag. (2011b, June 21). *Vaststelling nota van uitgangspunten nieuwe visie Vroondaal*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3352114/1/RIS180764

Gemeente Den Haag. (2011c, July 13). *Vroondaal Revisited*. Retrieved May 16, 2023, from https://denhaag.raadsinformatie.nl/document/3352139/1/RIS180764b

Gemeente Den Haag. (2011d, September 12). *Programmabegroting 2012-2015*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3322704/1/RIS181195a

Gemeente Den Haag. (2013a, April 16). *Programmarekening 2012*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3318443/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22

Gemeente Den Haag. (2013b, August 26). *Bijlage projectrapportages grote projecten ('GRIP') IpSO 2014 Deel 1 OPENBAAR*. Retrieved May 16, 2023, from https://denhaag.raadsinformatie.nl/document/3361868/1/RIS263532

Gemeente Den Haag. (2014a, April 15). *Accountantsrapport concernrekening 2013*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3327508/1/Concern+acr+2014_144concernwg

Gemeente Den Haag. (2014b, September 24). *Bijlage GRIP IpSO 2015*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3339718/1/RIS276321_bijlage+GRIP+-+openbaar+deel

Gemeente Den Haag. (2015, April 21). *Programmarekening 2014*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3322606/1/RIS282062_Bijlage+Programmarekening+2014

Gemeente Den Haag. (2016a, April 19). *Programmarekening 2015*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3408193/1/RIS293898_bijlage_Programmarekening_2015_Gemeente_Den_Haag

Gemeente Den Haag. (2016b, July 1). *Feitenrapport algemeen Moeite met afstand*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/3329518/1/Feitenrapport+algemeen+Moeite+met+afstand

Gemeente Den Haag. (2018, September 10). *Programmabegroting 2019-2022*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/6800354/1/RIS300472_Bijlage_2_Programmabegroting_2019-2022

Gemeente Den Haag. (2019, April 16). *Programmarekening 2018*. Retrieved May 22, 2023, from https://denhaag.raadsinformatie.nl/document/7529189/1/RIS302204_Programmarekening_2018_bijlage

Gluch, P., & Månsson, S. (2021). Taking Lead for Sustainability: Environmental Managers as Institutional Entrepreneurs. *Sustainability*, *13*(7), 4022. https://doi.org/10.3390/su13074022

Hendriks, F. (2014). Understanding Good Urban Governance. *Urban Affairs Review*, *50*(4), 553–576. https://doi.org/10.1177/1078087413511782

Heurkens, E., Hobma, F., Verheul, W. J., & Daamen, T. (2020). *Financiering van Gebiedstransformatie: Strategieën voor het toepassen van verschillende financieringsvormen bij binnenstedelijke gebiedsontwikkeling*. (Stedelijke Transformatie). Platform 31.

Heurkens, E., & Hobma, F. (2014). Private Sector-led Urban Development Projects: Comparative Insights from Planning Practices in the Netherlands and the UK. *Planning Practice &Amp; Research*, *29*(4), 350–369. https://doi.org/10.1080/02697459.2014.932196

Knox, S., & Burkard, A. W. (2009). Qualitative research interviews. *Psychotherapy Research*, *19*(4–5), 566–575. https://doi.org/10.1080/10503300802702105

Liu, J., Jin, F., Xie, Q., & Skitmore, M. (2017). Improving risk assessment in financial feasibility of international engineering projects: A risk driver perspective. *International Journal of Project Management*, *35*(2), 204–211. https://doi.org/10.1016/j.ijproman.2016.11.004

Lunenburg, F. C. (2010). The decision making process. In *National Forum of Educational Administration & Supervision Journal* (Vol. 27, No. 4).

Marat-Mendes, T., d'Almeida, P. B., & Borges, J. C. (2021). Concepts and definitions for a sustainable planning transition: lessons from moments of change. *European Planning Studies*, *30*(8), 1421–1443. https://doi.org/10.1080/09654313.2021.1894095

Marshall, C., Rossman, G. B., & Blanco, G. (2021). *Designing Qualitative Research* (Seventh). SAGE Publications, Inc.

Moore, Mark H. 1995. *Creating Public Value: Strategic Management in Government*. Cambridge, MA: Harvard University Press.

Morris, A. (2015). *A Practical Introduction to In-depth Interviewing*. SAGE.

Nabatchi, T. (2010). Addressing the Citizenship and Democratic Deficits: The Potential of Deliberative Democracy for Public Administration. *The American Review of Public Administration*, *40*(4), 376–399. https://doi.org/10.1177/0275074009356467

Park, C.S., (2002). *Contemporary Engineering Economics*. 3rd ed. New Jersey: Prentice-Hall, Inc.

Parli, R. (2001). What's financial feasibility got to do with it? *The Appraisal Journal, 69*(4), 419-423. https://www.proquest.com/scholarly-journals/whats-financial-feasibility-got-do-with/docview/199962146/se-2

Parnell, S. (2016). Defining a Global Urban Development Agenda. *World Development*, *78*, 529–540. https://doi.org/10.1016/j.worlddev.2015.10.028

Reiswijzer Gebiedsontwikkeling. (2019). *Reiswijzer gebiedsontwikkeling 2019: Een praktische routebeschrijving voor marktpartijen en overheden*. Bouwend Nederland, Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, NEPROM (Vereniging van Nederlandse Projectontwikkeling Maatschappijen) & VNG (Vereniging van Nederlandse Gemeenten).

Remer, D.S. and Nieto, A.P., (1995). A compendium and comparison of 25 project evaluation techniques. Part 1: Net present value and rate of return methods. *International Journal of Production Economics*. **42**, 79-96.

Sagalyn, L. B. (2007). Public/Private Development. *Journal of the American Planning Association*, *73*(1), 7–22. https://doi.org/10.1080/01944360708976133

Schoenfeld, A. H. (2011). *How we think: A theory of goal-oriented decision making and its educational applications*. New York, NY: Routledge.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63–75. https://doi.org/10.3233/efi-2004-22201 Sirianni, C. (2010). *Investing in Democracy: Engaging Citizens in Collaborative Governance*. Amsterdam University Press.

Strickland, T., 2013. The financialisation of urban development: tax increment financing in Newcastle upon Tyne. *Local Econ. 28 (4)*, 384–398.

Teisman, G. (2000). Models For Research into Decision-MakingProcesses: On Phases, Streams and Decision-Making Rounds. *Public Administration*, *78*(4), 937–956. https://doi.org/10.1111/1467-9299.00238

Torres, Lars H. 2003. *Deliberative democracy: A survey of the field in a report prepared for the William and Flora Hewlett Foundation*. Washington, DC: AmericaSpeaks.

Towler, M. (2010). *Rational decision making: An introduction*. New York, NY: Wiley.

Verheul, W. J., & Heurkens, E. W. T. M. (2021). Meervoudige waardecreatie van publieke en private projecten in stedelijke ontwikkeling. *Grondzaken en gebiedsontwikkeling, 16(2)*, 12-17.

Weber, R., 2010. Selling city futures: the financialization of urban redevelopment policy. *Econ.Geogr. 86 (3)*, 251–274.

Weech-Maldonado, R., & Merrill, S. B. (2000). Building partnerships with the community: lessons from the Camden Health Improvement Learning Collaborative. *Journal of healthcare management / American College of Healthcare Executives*, *45*(3), 189–205.

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., Blomberg, N., Boiten, J. W., da Silva Santos, L. B., Bourne, P. E., Bouwman, J., Brookes, A. J., Clark, T., Crosas, M., Dillo, I., Dumon, O., Edmunds, S., Evelo, C. T., Finkers, R., Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, *3*(1). https://doi.org/10.1038/sdata.2016.18

Willumsen, P. L., Oehmen, J., Stingl, V., & Geraldi, J. (2019). Value creation through project risk management. *International Journal of Project Management*, *37*(5), 731–749. https://doi.org/10.1016/j.ijproman.2019.01.007

9 Appendixes

9.1 Appendix I: Public documents

Search criteria: Madestein AND Vroondaal

Number of results: 656

Datum	Document	Link
2004-02-12	Vastellen Welstandsnota Den Haag	n.v.t.
2004-11-02	Vaststelling Ontwikkelingskader Madestein (1e tranche)	https://denhaag.raadsinformatie.nl/document/3322396/1/RIS121432
2004-11-02	Ontwikkelingskader Madestein Deelplan Bomen Ie fase	https://denhaag.raadsinformatie.nl/document/9783039/1/121432+Vaststelling+Ontwikkelingskader+Madestein+%281e+tranche%29_
2004-11-24	Raadsvoorstel inzake de vaststelling van het Ontwikkelingskader Madestein (1e tranche)	https://denhaag.raadsinformatie.nl/document/3322398/1
2005-03-29	Afwijking Aanbestedingsbeleid	https://denhaag.raadsinformatie.nl/document/3325984/1/RIS126306
2006-04-11	Jaarverslag 2005	https://denhaag.raadsinformatie.nl/document/3319361/1/RIS136906b
2007-04-17	Jaarverslag 2006	https://denhaag.raadsinformatie.nl/document/3335044/1/RIS145337a
2007-04-17	Jaarrekening 2006	https://denhaag.raadsinformatie.nl/document/3335043/1/RIS145337b
2007-07-11	Voortgangsrapportage Madestein	https://denhaag.raadsinformatie.nl/document/3343596/1/RIS147704
2008-04-08	Agenda en verslag B&W	https://denhaag.raadsinformatie.nl/document/3339504/1/RIS154045VS
2008-04-15	Jaarverslag 2007	https://denhaag.raadsinformatie.nl/document/3316712/1/RIS154275c
2008-11-18	Nota Vastgoedmanagement DSO	https://denhaag.raadsinformatie.nl/document/3340269/1/RIS159220a
2009-04-24	Jaarverslag 2008	https://denhaag.raadsinformatie.nl/document/3319134/1/RIS163497c
2009-09-01	Programmabegroting 2010-2013	https://denhaag.raadsinformatie.nl/document/3318890/1/RIS166299a
2009-09-08	Ipso Investeringsprogramma Stedelijke Ontwikkeling	https://denhaag.raadsinformatie.nl/document/3317016/1/RIS166412b
2009-12-01	Ontwikkeling Vroondaal	https://denhaag.raadsinformatie.nl/document/3335865/1/RIS168721
2010-09-14	Programmabegroting 2011-2014	https://denhaag.raadsinformatie.nl/document/3320679/1/RIS175064a
2010-09-28	Concernbericht 2010 (voortgangsrapportage over het beleid en financiën in 2010)	https://denhaag.raadsinformatie.nl/document/3352039/1/RIS175466a

2010-10-01	Investeringsprogramma Stedelijke Ordening	https://denhaag.raadsinformatie.nl/document/3351945/1/RIS175589
2010-10-01	Investeringsprogramma	https://denhaag.raadsinformatie.nl/document/3352040/1/RIS175589d
2010-10-12	Beantwoording technische vragen IpSO	https://denhaag.raadsinformatie.nl/document/3376227/1/RIS175880a
2011-04-19	Productenrealisatie 2010	https://denhaag.raadsinformatie.nl/document/3357969/1/RIS180309a
2011-04-19	Voorstel van het college inzake vaststelling jaarverslag 2010	https://denhaag.raadsinformatie.nl/document/3316309/1/RIS180308
2011-04-19	Jaarverslag 2010	https://denhaag.raadsinformatie.nl/document/3316317/1/RIS180308a
2011-06-21	Vaststelling nota van uitgangspunten nieuwe visie Vroondaal	https://denhaag.raadsinformatie.nl/document/3352114/1/RIS180764
2011-06-21	Ontwikkelingsvisie Vroondaal	https://denhaag.raadsinformatie.nl/document/3352138/1/RIS180764a
2011-06-21	Vroondaal Revisited	https://denhaag.raadsinformatie.nl/document/3352139/1/RIS180764b
2011-06-21	Nota van Uitgangspunten Visie 'Vroondaal Revisited'	https://denhaag.raadsinformatie.nl/document/3337211/1/RIS180771
2011-09-07	Voorstel tot wijziging van het raadsvoorstel over Investeringsprogramma Stedelijke Ontwikkeling	https://denhaag.raadsinformatie.nl/document/3322671/1/RIS181177
2011-09-07	Meerjarenprognose grondexploitaties 2011	https://denhaag.raadsinformatie.nl/document/3322700/1/RIS181177b
2011-09-07	IpSO 2012	https://denhaag.raadsinformatie.nl/document/3322701/1/RIS181177a
2011-09-12	Programmabegroting 2012-2015	https://denhaag.raadsinformatie.nl/document/3322704/1/RIS181195a
2011-10-04	Beantwoording schriftelijke vragen Gemeenteraad Per Fractie	https://denhaag.raadsinformatie.nl/document/3351732/1/RIS181401b
2011-10-18	Agenda en verslag Ruimte 2011-10-27	https://denhaag.raadsinformatie.nl/document/3337213/1/RIS181527AG1
2011-10-18	Besluitenlijst Ruimte 27 oktober 2011	https://denhaag.raadsinformatie.nl/document/3337218/1/RIS181527CV1
2011-11-29	Openbare brief aan commissie Ruimte naar aanleiding van bespreking Vroondaal Revisited d.d. 15 september 2011	https://denhaag.raadsinformatie.nl/document/3338004/1/RIS181905
2011-12-06	Agenda en verslag Ruimte 2011-12-15	https://denhaag.raadsinformatie.nl/document/3367371/1/RIS181952AG1
2011-12-06	Verslag Ruimte 15 december 2011	https://denhaag.raadsinformatie.nl/document/3367372/1/RIS181952CV2
2011-12-06	Insprekers Ruimte 15 december 2011	https://denhaag.raadsinformatie.nl/document/3790658/1/RIS181952CV3

2011-04-17	Jaarverslag 2011	https://denhaag.raadsinformatie.nl/document/3317289/1

Search criteria: Voortgangsrapportage AND Madestein AND Vroondaal

Number of results: 119

2012-07-24	Kavels in Vroondaal	https://denhaag.raadsinformatie.nl/document/3342192/1
2013-03-12	Besluitenlijst B&W 12 maart 2013	https://denhaag.raadsinformatie.nl/document/3344390/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2013-04-16	Programmarekening 2012	https://denhaag.raadsinformatie.nl/document/3318443/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2013-05-28	Technische Vragen Programmarekening 2012	https://denhaag.raadsinformatie.nl/document/3320142/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2013-06-27	Besluitenlijst B&W 25 juni 2013	https://denhaag.raadsinformatie.nl/document/3320237/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2013-09-11	Meerjaren prognose grondexploitaties 2013	https://denhaag.raadsinformatie.nl/document/3361867/1/RIS263532_bijlage+MPG2013
2013-09-11	Bijlage GRIP IpSO 2014 (MPG)	https://denhaag.raadsinformatie.nl/document/3361868/1/RIS263532_Bijlage+GRIP+IpSO+2014+OPENBAAR
2014-03-06	Verslag commissie Ruimte 13 februari 2014	https://denhaag.raadsinformatie.nl/document/3330366/1/RIS270766+Verslag+cie+Ruimte+13+februari+2014+avond
2014-04-15	Programmarekening 2013	https://denhaag.raadsinformatie.nl/document/3327506/1/RIS271603_bijlage+Programmarekening+2013
2014-04-15	Accountantsrapport concernrekening 2013	https://denhaag.raadsinformatie.nl/document/3327508/1/Concern+acr+2014_144concernwg
2014-09-24	Bijlage GRIP IpSO 2015	https://denhaag.raadsinformatie.nl/document/3339718/1/RIS276321_bijlage+GRIP+-+openbaar+deel

2015-04-21	Programmarekening 2014	https://denhaag.raadsinformatie.nl/document/3322606/1/RIS282062_Bijlage+Programmarekening+2014
2015-04-22	Besluitenlijst B&W 14 april 2015	https://denhaag.raadsinformatie.nl/document/3334292/1/RIS282040+Besluitenlijst+van+het+college+van+B%26W+van+14+april+2015
2015-09-02	Voortgangsrapportage 2015 gebiedsontwikkeling Vroondaal	https://denhaag.raadsinformatie.nl/document/3337558/1/RIS285579+Voortgangsrapportage+2015+gebiedsontwikkeling+Vroondaal
2015-09-08	Programmabegroting 2016-2019	https://denhaag.raadsinformatie.nl/document/3317088/1/RIS285871_Bijlage+Programmabegroting+2016-2019
2016-01-07	Feitenrapport gevalsstudies Moeite met afstand	https://denhaag.raadsinformatie.nl/modules/13/Overige%20bestuurlijke%20stukken/72796
2016-01-07	Fietenrapport algemeen Moeite met afstand	https://denhaag.raadsinformatie.nl/document/3329518/1/Feitenrapport+algemeen+Moeite+met+afstand
2016-04-19	Programmarekening 2015	https://denhaag.raadsinformatie.nl/document/3408193/1/RIS293898_bijlage_Programmarekening_2015_Gemeente_Den_Haag
206-09-13	Programmabegroting 2017-2020	https://denhaag.raadsinformatie.nl/document/3913788/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2016-09-27	Halfjaarbericht 2016	https://denhaag.raadsinformatie.nl/document/3974573/1#search=%22voortgangsrapportage%20AND%20madestein%20AND%20vroondaal%22
2017-09-12	Programmabegroting 2018-2021	https://denhaag.raadsinformatie.nl/document/5664265/1/RIS297813_bijlage_Programmabegroting_2018-2021
2018-09-10	Programmabegroting 2019-2022	https://denhaag.raadsinformatie.nl/document/6800354/1/RIS300472_Bijlage_2_Programmabegroting_2019-2022
2018-09-10	Meerjarenprognose Grondexploitaties 2018	https://denhaag.raadsinformatie.nl/document/6803050/1/RIS300473_Bijlage_1
2019-03-07	Voortgangsrapportage Vroondaal Gebiedsontwikkeling	https://denhaag.raadsinformatie.nl/document/7392535/1/RIS301951_Bijlage_Voortgangsrapportage_Gebiedsontwikkeling_Vroondaal

2019-04-16	Programmarekening 2018	https://denhaag.raadsinformatie.nl/document/7529189/1/RIS302204_Programmarekening_2018_bijlage
2020-01-30	Programmabegroting 2020-2023	https://denhaag.raadsinformatie.nl/document/8406416/1/RIS304372_Bijlage_1A_Begroting_2020-2023
2020-01-30	Bijlagen Programmabegroting 2020-2023	https://denhaag.raadsinformatie.nl/document/8406419/1/RIS304372_Bijlage_1B_-_Online_bijlagen_Programmabegroting_2020-2023
2020-04-20	Programmarekening 2019	https://denhaag.raadsinformatie.nl/document/8665487/1/RIS305159_Bijlage_1
2020-04-20	Bijlagen Programmarekening 2019	https://denhaag.raadsinformatie.nl/document/8665493/1/RIS305159_Bijlage_2
2020-09-08	Programmabegroting 2021-2024	https://denhaag.raadsinformatie.nl/document/9131715/1/RIS306159_BIJLAGE_2
2020-09-08	Bijlagen Programmabegroting 2021-2024	https://denhaag.raadsinformatie.nl/document/9131717/1/RIS306159_BIJLAGE_3
2021-06-01	Notulen van de raad van 15 april 2021	https://denhaag.raadsinformatie.nl/document/10205459/3/RIS308975+Notulen+van+de+raad+van+15+april+2021+%28dag%29
2021-06-25	Programmarekening 2020	https://denhaag.raadsinformatie.nl/document/10329040/1/RIS308436_bijlage_1A_Boekwerk_Programmarekening_2020
2021-06-25	Bijlagen Programmarekening 2020	https://denhaag.raadsinformatie.nl/document/10329041/1/RIS308436_bijlage_1B_Online_bijlagen
2021-09-09	Programmabegroting 2022-2025	https://denhaag.raadsinformatie.nl/document/10518827/1/RIS309850_Bijlage_2_-_Begroting_2022-2025
2022-05-10	Programmarekening 2021	https://denhaag.raadsinformatie.nl/document/11476653/1/RIS312006_-_Bijlage_1_Programmarekening_2021
2022-08-29	Besluitenlijst B&W 5 juli 2022	https://denhaag.raadsinformatie.nl/document/11694516/2/RIS312865+Besluitenlijst+van+het+college+van+benw+van+5+juli+2022
2022-10-04	Notulen van de raad van 8 september 2022	https://denhaag.raadsinformatie.nl/document/11905536/3/RIS313318+Notulen+van+de+raad+van+8+september+2022
2022-12-01	Programmabegroting 2023-2026	https://denhaag.raadsinformatie.nl/document/12130895/1/RIS313463_Bijlage_Programmabegroting_2023-2026

2022-12-21	Notulen van de raad 10 november 2022	https://denhaag.raadsinformatie.nl/document/12190474/3/RIS314046+Notulen+van+de+raad+van+10+november+2022
2023-02-03	Besluitenlijst commissie Ruimte 1 februari 2023	https://denhaag.raadsinformatie.nl/document/12394493/2/Besluitenlijst+commissie+Ruimte+d_d_+1+februari+2023

9.2 Appendix II: Land exploitation reports

This Appendix contains confidential information.

For more information, please contact:

Isis Sep

isis_sep@hotmail.com

9.3 Appendix III: Interview transcripts

This Appendix contains confidential information.

For more information, please contact:

Isis Sep

isis_sep@hotmail.com

9.4 Appendix IV: Interview protocol

Datum: 30 maart 2023
Geïnterviewde:

Onderzoek
In Nederland zijn publiek-private samenwerkingen een strategie gebleken voor complexe gebiedsontwikkeling, mede vanwege de wederzijdse verantwoordelijkheid en toerekenbaarheid van partijen. Deze op consensus gerichte besluitvorming vereist hogere normen van verantwoording en dit houdt verband met de haalbaarheid. Er is echter weinig praktisch onderzoek gedaan naar hoe deze vorm van samenwerken leidt tot een haalbare gebiedsontwikkeling. Daarnaast wordt door de lange doorlooptijd van een gebiedsontwikkeling zelden onderzocht hoe de haalbaarheid zich door de jaren heen beweegt en wat partijen daarin drijft. Dit maakt het lastig om gebiedsontwikkeling als proces te begrijpen. **Het doel van dit onderzoek is om meer inzicht te bieden in de sturingsmiddelen op haalbaarheid van gebiedsontwikkeling in publiek-private samenwerking.**

De belangrijkste onderzoeksvraag luidt: *Hoe sturen actoren in publiek-private samenwerking op de haalbaarheid van gebiedsontwikkeling?*

Het onderzoek bestaat uit twee onderdelen. Allereerst is het proces van de gebiedsontwikkeling inzichtelijk gemaakt aan de hand van een documenten zoals bestemmingsplannen, rekenmodellen, gemeentelijke programmabegrotingen, GRIP-rapportages en projectvoortgangsrapportages. Hieruit zijn belangrijke momenten in het proces vastgesteld waarin interne en/of externe ontwikkelingen en risico's effect hadden op de haalbaarheid. Vervolgens is daar vanuit de publiek-private samenwerking op gestuurd. In dit interview wil ik u vragen wat de argumentatie achter bepaalde keuzes en sturingsmiddelen is geweest.

Belangrijke momenten in het proces:

1. Contract exploitatie B.V./C.V.-constructie: 2008-2010
2. Eerste grondexploitatie definitief vastgesteld vanuit GEM Vroondaal: 2010
3. Vaststelling nieuw Stedenbouwkundig Plan vanwege andere visie op woningaanbod: 2013
4. Opgaande markt gaat gepaard met hoog afzettempo van gronden waardoor overfinanciering (2016/2017), maar de afspraken uit de herfinanciering uit 2013 hadden een lager aflossingstempo.
5. Huidig kantelpunt in de markt: 2022-2023

Interview
Het interview duurt circa 60 minuten en wordt bij voorkeur opgenomen. De audio opname zal worden gebruikt voor het uitwerken van het interview. Uw deelname is vrijwillig en u kunt uw deelname op elk gewenst moment stoppen. U hoeft geen vragen te beantwoorden die u niet wenst te beantwoorden. Door deel te nemen aan dit onderzoek zult u meer inzicht krijgen in het proces van de gebiedsontwikkeling. Het bredere doel van dit onderzoek is waardevolle kennisdeling met praktische inzichten voor toekomstige gebiedsontwikkelingen.

Tijdsindeling

Deel van het interview	Onderwerp	Vraag of toelichting
Introductie (10 minuten)	Kennismaking	Rol binnen organisatie en project
	Toelichting doel en structuur van het interview	
	Vertrouwelijkheid	
	Audio opname	
	Vragen voorafgaand aan het interview	
Onderzoek (40 minuten)	De PPS is begonnen in 2008 en loopt nog steeds door. Daarin zijn cruciale momenten voorgekomen (Go/No go, point of no return). Deze momenten wil ik graag met u bespreken, hier dieper op ingaan en achterhalen hoe jullie daarop heb gehandeld (sturing).	
	Kunt u met mij het proces van Vroondaal (2008-2023) doorlopen en belangrijke momenten	
	1. Contract exploitatie B.V./C.V.-constructie: 2008-2010	Aannames Ontwikkelingen/ risico's Sturingsmiddelen
	2. Eerste grondexploitatie definitief vastgesteld vanuit GEM Vroondaal: 2010	Aannames Ontwikkelingen/ risico's Sturingsmiddelen
	3. Vaststelling nieuw Stedenbouwkundig Plan vanwege andere visie op woningaanbod: 2013	Aannames Ontwikkelingen/ risico's Sturingsmiddelen
	4. Opgaande markt gaat gepaard met hoog afzettempo van gronden waardoor overfinanciering (2016/2017), maar de afspraken uit de herfinanciering uit 2013 hadden een lager aflossingstempo.	Aannames Ontwikkelingen/ risico's Sturingsmiddelen
	5. 2019 wijziging uitgangspunten financiering en verkorting GREX van 2032 naar 2027	
	6. Huidig kantelpunt in de markt: 2022-2023	Aannames Ontwikkelingen/ risico's Sturingsmiddelen
Afsluiting (5 minuten)	Vragen afsluitend van het interview	
	Toelichting vervolg data	
Uitloop (5 minuten)		

9.5 Appendix V: Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: Steering on feasibility in urban area development

Creator: Isis Sep

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2021)

Project abstract:

Ambitions towards a sustainable environment are enforced in urban area development and linked with other important concerns like mobility and transportation, health, social cohesion and diversity, the energy transition, climate adaptation, and the pressing demand for housing and other functions. This makes urban area development an integral complex task with implications that often reach far beyond its physical boundaries. Subsequently, this means that a considerable number of actors is involved, leading to diverse interests that cannot be accommodated without conflict. Parallel to the diverse interests among actors in urban area development, increased challenges in the built environment have replaced governmental-led town planning by a more integrated strategic decision-making process, managing both public and private initiatives in public-private partnerships. This collaboration demands higher standards of accountability, communication, trust, and joint risk management and often lead to successful projects. Therefore, public-private partnerships have shown to be a favourable strategy in complex urban area development. However, little practical research is done to how this type of collaboration leads to feasible urban area development. The aim of this research is to provide deeper insight in how public-private partnerships can generate feasible urban area development and initiates a practical implementation on how actors in collaborative governance steer on feasible urban area development. The main research question is: *How do actors in collaborative governance steer on the feasibility of urban area development?* To clarify terminology, a literature study describes the concepts and relations of ‘collaborative governance’ and ‘feasibility in urban area development’. Next to this, empirical research on qualitative data will be derived from case studies: two urban area developments in the Netherlands collaborating according to the principles of public-private partnerships. The research uses two types of data collection methods: document analysis and in-depth interviewing.

ID: 121125

Start date: 01-04-2023

End date: 30-06-2023

Last modified: 28-03-2023

Steering on feasibility in urban area development

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

Diana Popa is Data Steward at the Faculty of Architecture and the Build Environment and has been consulted for this DMP on 28-03-2023.

2. Date of consultation with support staff.

2023-03-28

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Qualitative interview data	.MP3 files	Audio recordings interviews	To understand the decision-making process of the case study	Project Storage drive	The project team (the PI and the two postdocs: Tom Daamen and Peter de Jong)
Anonymised interview data	.TXT files	Transcripts of audio recordings interviews	To use the data in research outcomes	SURF drive	The project team (the PI and the two postdocs: Tom Daamen and Peter de Jong)
Name, email address, phone number	.TXT files	Digital communication	To contact the research respondents	Project Storage drive	The project team (the PI and the two postdocs: Tom Daamen and Peter de Jong)
Informed Consent forms	.PDF files	Digital communication	To gain approval for study participation and data processing	Project Storage drive	The project team (the PI and the two postdocs: Tom Daamen and Peter de Jong)

4. How much data storage will you require during the project lifetime?

- 250 GB - 5 TB

II. Documentation and data quality

5. What documentation will accompany data?

- Data will be deposited in a data repository at the end of the project (see section V) and data discoverability and re-usability will be ensured by adhering to the repository’s metadata standards
- Methodology of data collection

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

- OneDrive
- SURFdrive
- Project Storage at TU Delft

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

- Yes

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, ask your Faculty Data Steward for advice. You can also check with the privacy website or contact the privacy team: privacy-tud@tudelft.nl

- Yes

The personal data that will be collected concerns information about the respondent's identity, like name, email address, phone number, work experience, and current occupation. Also, the involvement of participants in the case study project will be part of the data collection. This includes their motives behind specific moments in the decision-making process.

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- Yes, confidential data received from commercial, or other external partners

The data collection includes confidential documents like contracts, calculation models, and expert reports.

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question. If this is not the case, you can use the example below.

The datasets underlying the published papers will be publicly released following the TU Delft Research Data Framework Policy. During the active phase of research, the project leader from TU Delft will oversee the access rights to data (and other outputs), as well as any requests for access from external parties. They will be released publicly no later than at the time of publication of corresponding research papers.

10. Which personal data will you process? Tick all that apply

- Data collected in Informed Consent form (names and email addresses)
- Signed consent forms
- Email addresses and/or other addresses for digital communication
- Telephone numbers
- Names and addresses

11. Please list the categories of data subjects

Employees of the different companies involved in the public-private partnership:

- Municipality
- Development company
- Advisors

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

- No

15. What is the legal ground for personal data processing?

- Informed consent

16. Please describe the informed consent procedure you will follow:

All research participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview. The informed consent emphasizes the confidentiality and anonymity of the research findings.

17. Where will you store the signed consent forms?

- Same storage solutions as explained in question 6

Project Storage will mainly be used because it provides regularities concerning confidential data and informed consent forms are confidential.

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to complete the DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If only one of the options listed below applies, your project might need a DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to get advice as to whether DPIA is necessary.
If you have any additional comments, please add them in the box below.

- None of the above applies

22. What will happen with personal research data after the end of the research project?

- Anonymised or aggregated data will be shared with others
- Personal research data will be destroyed after the end of the research project

23. How long will (pseudonymised) personal data be stored for?

- 10 years or more, in accordance with the TU Delft Research Data Framework Policy

24. What is the purpose of sharing personal data?

- For research purposes, which are in-line with the original research purpose for which data have been collected

25. Will your study participants be asked for their consent for data sharing?

- Yes, in consent form - please explain below what you will do with data from participants who did not consent to data sharing

The informed consent form asks research participants to allow anonymised data for sharing. If participants do not give their written consent, their data will not be published.

V. Data sharing and long-term preservation

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

- All other non-personal data (and code) produced in the project

29. How will you share research data (and code), including the one mentioned in question 22?

- All pseudonymised data will be uploaded to 4TU.ResearchData with restricted access

30. How much of your data will be shared in a research data repository?

- 100 GB - 1 TB

31. When will the data (or code) be shared?

- At the end of the research project

32. Under what licence will be the data/code released?

- CC BY-NC
- BSD

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

- Yes, leading the collaboration - please provide details of the type of collaboration and the involved parties below

This Master's thesis is written at an internship company. TU Delft is the leading institution but not the owner of all the data. Confidential

project document will therefore be stored and managed at the company's OneDrive.

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

Supervisor T.A. (Tom) Daamen
t.a.daamen@tudelft.nl
Urban Development Management (Department of Management in the Built Environment)

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

4TU.ResearchData is able to archive 1TB of data per researcher per year free of charge for all TU Delft researchers. We do not expect to exceed this and therefore there are no additional costs of long term preservation.

9.6 Appendix VI: Human Research Ethics

Delft University of Technology
HUMAN RESEARCH ETHICS
CHECKLIST FOR HUMAN RESEARCH
(Version January 2022)

IMPORTANT NOTES ON PREPARING THIS CHECKLIST

1. An HREC application should be submitted for every research study that involves human participants (as Research Subjects) carried out by TU Delft researchers
2. Your HREC application should be submitted and approved **before** potential participants are approached to take part in your study
3. All submissions from Master's Students for their research thesis need approval from the relevant Responsible Researcher
4. The Responsible Researcher must indicate their approval of the completeness and quality of the submission by signing and dating this form OR by providing approval to the corresponding researcher via email (included as a PDF with the full HREC submission)
5. There are various aspects of human research compliance which fall outside of the remit of the HREC, but which must be in place to obtain HREC approval. These often require input from internal or external experts such as Faculty Data Stewards, Faculty HSE advisors, the TU Delft Privacy Team or external Medical research partners.
6. You can find detailed guidance on completing your HREC application here
7. Please note that incomplete submissions (whether in terms of documentation or the information provided therein) will be returned for completion **prior to any assessment**
8. If you have any feedback on any aspect of the HREC approval tools and/or process you can leave your comments here

I. Applicant Information

PROJECT TITLE:	**Steering on feasibility in urban area development**
Research period: *Over what period of time will this specific part of the research take place*	**01-04-2023 till 30-06-2023**
Faculty:	**Architecture and the Built Environment**
Department:	**Management in the Built Environment**
Type of the research project: *(Bachelor's, Master's, DreamTeam, PhD, PostDoc, Senior Researcher, Organisational etc.)*	**Master's**
Funder of research: *(EU, NWO, TUD, other – in which case please elaborate)*	**None**
Name of Corresponding Researcher: *(If different from the Responsible Researcher)*	**Isis Sep**
E-mail Corresponding Researcher: *(If different from the Responsible Researcher)*	**i.m.sep@student.tudelft.nl**
Position of Corresponding Researcher: *(Masters, DreamTeam, PhD, PostDoc, Assistant/ Associate/ Full Professor)*	**Masters**
Name of Responsible Researcher: ***Note:** all student work must have a named Responsible Researcher to approve, sign and submit this application*	**Dr.ir. T.A. (Tom) Daamen**
E-mail of Responsible Researcher: *Please ensure that an institutional email address (**no Gmail, Yahoo, etc.**) is used for all project documentation/ communications including Informed Consent materials*	**T.A.Daamen@tudelft.nl**
Position of Responsible Researcher : *(PhD, PostDoc, Associate/ Assistant/ Full Professor)*	**Full Professor**

II. Research Overview

***NOTE:** You can find more guidance on completing this checklist here*

a) Please summarise your research very briefly (100-200 words)

What are you looking into, who is involved, how many participants there will be, how they will be recruited and what are they expected to do?

Add your text here – (please avoid jargon and abbrevations)
This research investigates how actors in public-private partnerships steer on the feasibility of urban area development. Therefore, qualitative data will be derived from case studies: two urban area developments in the Netherlands that collaborate according to the principles of public-private partnerships. The case studies are communicated by the internship's company. For the purposes of identifying moments of steering and their underlying arguments, 8 participants of the case studies will be recruited through the company's network. Participants will be asked for their experience and expert-knowledge on the decision-making process. Therefore, participants are part of the municipality, development company or consulting company.

b) **If your application is an additional project** related to an existing approved HREC submission, please provide a brief explanation including the existing relevant HREC submission number/s.

Add your text here – (please avoid jargon and abbrevations)

c) **If your application is a simple extension of, or amendment to,** an existing approved HREC submission, you can simply submit an HREC Amendment Form as a submission through LabServant.

III. Risk Assessment and Mitigation Plan

NOTE: *You can find more guidance on completing this checklist here*

Please complete the following table in full for all points to which your answer is "yes". Bear in mind that the vast majority of projects involving human participants as Research Subjects also involve the collection of **Personally Identifiable Information (PII)** and/or **Personally Identifiable Research Data (PIRD)** which may pose potential risks to participants as detailed in Section G: Data Processing and Privacy below.

To ensure alighment between your risk assessment, data management and what you agree with your Research Subjects you can use the last two columns in the table below to refer to specific points in your Data Management Plan (DMP) and Informed Consent Form (ICF) – **but this is not compulsory**.

It's worth noting that **you're much more likely to need to resubmit your application if you neglect to identify potential risks**, than if you identify a potential risk and demonstrate how you will mitigate it. If necessary, the HREC will always work with you and colleagues in the Privacy Team and Data Management Services to see how, if at all possible, your research can be conducted.

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
A: Partners and collaboration						
1. Will the research be carried out in collaboration with additional organisational partners such as: • One or more collaborating research and/or commercial organisations • Either a research, or a work experience internship provider[1] [1] *If yes, please include the graduation agreement in this application*		**X**				
2. Is this research dependent on a Data Transfer or Processing Agreement with a collaborating partner or third party supplier? *If yes please provide a copy of the signed DTA/DPA*		**X**				
3. Has this research been approved by another (external) research ethics committee (e.g.: HREC and/or MREC/METC)? *If yes, please provide a copy of the approval (if possible) and summarise any key points in your Risk Management section below*		**X**				
B: Location						

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
4. Will the research take place in a country or countries, other than the Netherlands, within the EU?		**X**				
5. Will the research take place in a country or countries outside the EU?		**X**				
6. Will the research take place in a place/region or of higher risk – including known dangerous locations (in any country) or locations with non-democratic regimes?		**X**				
C: Participants						
7. Will the study involve participants who **may** be vulnerable and possibly (legally) unable to give informed consent? (e.g., children below the legal age for giving consent, people with learning difficulties, people living in care or nursing homes,).		**X**				
8. Will the study involve participants who **may** be vulnerable under specific circumstances and in specific contexts, such as victims and witnesses of violence, including domestic violence; sex workers; members of minority groups, refugees, irregular migrants or dissidents?		**X**				
9. Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator (such as own children, own students or employees of either TU Delft and/or a collaborating partner organisation)? *It is essential that you safeguard against possible adverse consequences of this situation (such as allowing a student's failure to participate to your satisfaction to affect your evaluation of their coursework).*		**X**				
10. Is there a high possibility of re-identification for your participants? (e.g., do they have a very specialist job of which there are only a small number in a given country, are they members of a small community, or employees from a partner company collaborating in the research? Or are they one of only a handful of (expert) participants in the study?		**X**				
D: Recruiting Participants						
11. Will your participants be recruited through your own, professional, channels such as conference attendance lists, or through specific network/s such as self-help groups	**X**		Participant will be recruited through the professional channels of the internship company. One of the risks that arises is that participants can be easy to identified because of their relation with the company and the project. Also, their involvement in the research and experience on the decision-making process can affect their professional relationship with the company.	To mitigate the risks of identification of participants and affecting the professional relationship, no colleagues will be abreast of substantive research developments.	**X**	

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
12. Will the participants be recruited or accessed in the longer term by a (legal or customary) gatekeeper? (e.g., an adult professional working with children; a community leader or family member who has this customary role – within or outside the EU; the data producer of a long-term cohort study)		**X**				
13. Will you be recruiting your participants through a crowd-sourcing service and/or involve a third party data-gathering service, such as a survey platform?		**X**				
14. Will you be offering any financial, or other, remuneration to participants, and might this induce or bias participation?		**X**				
E: Subject Matter *Research related to medical questions/health may require special attention. See also the website of the CCMO before contacting the HREC.*						
15. Will your research involve any of the following: • Medical research and/or clinical trials • Invasive sampling and/or medical imaging • Medical and *In Vitro Diagnostic Medical* Devices Research		**X**				
16. Will drugs, placebos, or other substances (e.g., drinks, foods, food or drink constituents, dietary supplements) be administered to the study participants? *If yes see here to determine whether medical ethical approval is required*		**X**				
17. Will blood or tissue samples be obtained from participants? *If yes see here to determine whether medical ethical approval is required*		**X**				
18. Does the study risk causing psychological stress or anxiety beyond that normally encountered by the participants in their life outside research?		**X**				
19. Will the study involve discussion of personal sensitive data which could put participants at increased legal, financial, reputational, security or other risk? (e.g., financial data, location data, data relating to children or other vulnerable groups) *Definitions of sensitive personal data, and special cases are provided on the TUD Privacy Team website.*		**X**				
20. Will the study involve disclosing commercially or professionally sensitive, or confidential information? (e.g., relating to decision-making processes or business strategies which might, for example, be of interest to competitors)	**X**		Interviews and expert consultation may expose participants to different kinds of risks depending on who is participating, what kinds of questions they are answering and how the information they give will be used. Their arguments about the decision-making process can be of interest to others and used against them.	Where informed consent is sought, it must be made clear to prospective research participants that they are free to decide whether or not to take part in the research, and whether any data collected from and about them is included in analysis.		**X**

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
21. Has your study been identified by the TU Delft Privacy Team as requiring a Data Processing Impact Assessment (DPIA)? *If yes please attach the advice/ approval from the Privacy Team to this application*		**X**				
22. Does your research investigate causes or areas of conflict? *If yes please confirm that your fieldwork has been discussed with the appropriate safety/security advisors and approved by your Department/Faculty.*		**X**				
23. Does your research involve observing illegal activities or data processed or provided by authorities responsible for preventing, investigating, detecting or prosecuting criminal offences *If so please confirm that your work has been discussed with the appropriate legal advisors and approved by your Department/Faculty.*		**X**				
F: Research Methods						
24. Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people in non-public places).		**X**				
25. Will the study involve actively deceiving the participants? (For example, will participants be deliberately falsely informed, will information be withheld from them or will they be misled in such a way that they are likely to object or show unease when debriefed about the study).		**X**				
26. Is pain or more than mild discomfort likely to result from the study? And/or could your research activity cause an accident involving (non-) participants?		**X**				
27. Will the experiment involve the use of devices that are not 'CE' certified? *Only, if 'yes': continue with the following questions:*		**X**				
• Was the device built in-house?						
• Was it inspected by a safety expert at TU Delft? *If yes, please provide a signed device report*						
• If it was not built in-house and not CE-certified, was it inspected by some other, qualified authority in safety and approved? *If yes, please provide records of the inspection*						
28. Will your research involve face-to-face encounters with your participants and if so how will you assess and address Covid considerations?	**X**		Face-to-face encounters increase the risk of virus dissemination.	Face-to-face encounters will only appear at the respondents' preference. If so, determined government rules like no hand shaking and 1,5 meter distance will be maintained.		**X**

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
29. Will your research involve **either:** a) "big data", combined datasets, new data-gathering or new data-merging techniques which might lead to re-identification of your participants **and/or** b) artificial intelligence or algorithm training where, for example biased datasets could lead to biased outcomes?		**X**				
G: Data Processing and Privacy						
30. Will the research involve collecting, processing and/or storing any directly identifiable PII (Personally Identifiable Information) including name or email address that will be used for administrative purposes only? (eg: obtaining Informed Consent or disbursing remuneration)	**X**		Failure to protect personal data (PII and/or PIRD) against loss or misuse can have devastating consequences for the data subjects, such as loss of employment, exposure to physical or online abuse, refusal of insurance cover, or loss of reputation.	The research is GDPR compliant because the Faculty Data Steward has been consulted. The GDPR emphasizes the need of data minimization: processing as little personal data as possible. Therefore, the researcher will collect as little PII/PIRD as possible. For example, no video recordings are used if audio recordings suffice. Also, it is essential to ask for Informed Consent and include both that participation is voluntary and that participants can withdraw at any point without adverse consequence.		**X**
31. Will the research involve collecting, processing and/or storing any directly or indirectly identifiable PIRD (Personally Identifiable Research Data) including videos, pictures, IP address, gender, age etc and **what other Personal Research Data** (including personal or professional views) will you be collecting?		**X**				
32. Will this research involve collecting data from the internet, social media and/or publicly available datasets which have been originally contributed by human participants	**X**		Where multiple anonymous datasets (including public datasets) are to be combined, the possibilities for unintended re-identification should be carefully considered. Therefore, publicly available datasets about the case studies increase the risk of identification of the respondents and their arguments in the non-public datasets.	All data, both public and non-public, will be anonymized. Anonymisation is the process of removing personal identifiers (both direct and indirect) that may lead to an individual being identified.	**X**	
33. Will your research findings be published in one or more forms in the public domain, as e.g., Masters thesis, journal publication, conference presentation or wider public dissemination?	**X**		The research findings will be published in the publicly accessible repository of Delft University of Technology as a Master's thesis. The increased exposure of the case studies can affect their ongoing processes and relationships between actors involved.	Only objective research results will be published in this repository.	**X**	
34. Will your research data be archived for re-use and/or teaching in an open, private or semi-open archive?		**X**				

H: More on Informed Consent and Data Management

NOTE: You can find guidance and templates for preparing your Informed Consent materials) here

Your research involves human participants as Research Subjects if you are recruiting them or actively involving or influencing, manipulating or directing them in any way in your research activities. This means you must seek informed consent and agree/ implement appropriate safeguards regardless of whether you are collecting any PIRD.

Where you are also collecting PIRD, and using Informed Consent as the legal basis for your research, you need to also make sure that your IC materials are clear on any related risks and the mitigating measures you will take – including through responsible data management.

Got a comment on this checklist or the HREC process? You can leave your comments here

IV. Signature/s

Please note that by signing this checklist list as the sole, or Responsible, researcher you are providing approval of the completeness and quality of the submission, as well as confirming alignment between GDPR, Data Management and Informed Consent requirements.

Name of Corresponding Researcher (if different from the Responsible Researcher) (print)

Signature of Corresponding Researcher: 

Date: 28-03-2023

Name of Responsible Researcher (print)

Signature (or upload consent by mail) Responsible Researcher: 

Date: 05-04-2023

V. Completing your HREC application

Please use the following list to check that you have provided all relevant documentation

Required:

- **Always:** This completed HREC checklist
- **Always:** A data management plan (reviewed, where necessary, by a data-steward)
- **Usually:** A complete Informed Consent form (including Participant Information) and/or Opening Statement (for online consent)

Please also attach any of the following, if relevant to your research:

Document or approval	Contact/s
Full Research Ethics Application	After the assessment of your initial application **HREC will let you know if and when you need to submit additional information**
Signed, valid Device Report	Your Faculty HSE advisor
Ethics approval from an external Medical Committee	TU Delft Policy Advisor, Medical (Devices) Research
Ethics approval from an external Research Ethics Committee	Please append, if possible, with your submission
Approved Data Transfer or Data Processing Agreement	Your Faculty Data Steward and/or TU Delft Privacy Team
Approved Graduation Agreement	Your Master's thesis supervisor
Data Processing Impact Assessment (DPIA)	TU Delft Privacy Team
Other specific requirement	Please reference/explain in your checklist and append with your submission

9.7 Appendix VII: Informed Consent Form

Rotterdam, 12 april 2023

Betreft: Geïnformeerde toestemming deelname onderzoek naar Sturen op haalbaarheid in gebiedsontwikkeling

Geachte heer/mevrouw,

U wordt uitgenodigd om deel te nemen aan het onderzoek *Sturen op haalbaarheid in gebiedsontwikkeling*. Dit onderzoek wordt uitgevoerd door I.M. (Isis) Sep, als afstudeeronderzoek voor de Master Management in the Built Environment aan de Technische Universiteit Delft (Faculteit Bouwkunde). Zij wordt daarin begeleidt door mentoren Dr.ir. T.A. (Tom) Daamen en Ing. P. (Peter) de Jong vanuit de TU Delft en R. (Robin) Vriends vanuit Fakton Development.

Het onderzoek
In Nederland zijn publiek-private samenwerkingen een strategie gebleken voor complexe gebiedsontwikkeling, mede vanwege de wederzijdse verantwoordelijkheid en toerekenbaarheid van partijen. Deze op consensus gerichte besluitvorming vereist hogere normen van verantwoording en dit houdt verband met de haalbaarheid. Er is echter weinig praktisch onderzoek gedaan naar hoe deze vorm van samenwerken leidt tot een haalbare gebiedsontwikkeling. Daarnaast wordt door de lange doorlooptijd van een gebiedsontwikkeling zelden onderzocht hoe de haalbaarheid zich door de jaren heen beweegt en wat partijen daarin drijft. Dit maakt het lastig om gebiedsontwikkeling als proces te begrijpen. **Het doel van dit onderzoek is om meer inzicht te bieden in de sturingsmiddelen op haalbaarheid van gebiedsontwikkeling in publiek-private samenwerking.**

Het onderzoek bestaat uit twee onderdelen. Allereerst is het proces van de gebiedsontwikkeling inzichtelijk gemaakt aan de hand van een documenten zoals bestemmingsplannen, rekenmodellen, gemeentelijke programmabegrotingen, GRIP-rapportages en projectvoortgangsrapportages. Hieruit zijn belangrijke momenten in het proces vastgesteld waarin interne en/of externe ontwikkelingen en risico's effect hadden op de haalbaarheid. Vervolgens is daar vanuit de publiek-private samenwerking op gestuurd. In de interviews wil ik u vragen wat de argumentatie achter bepaalde keuzes en sturingsmiddelen is geweest.

Het interview
Het interview duurt circa 60 minuten en wordt bij voorkeur opgenomen. De audio opname zal worden gebruikt voor het uitwerken van het interview. Uw deelname is vrijwillig en u kunt uw deelname op elk gewenst moment stoppen. U hoeft geen vragen te beantwoorden die u niet wenst te beantwoorden. Door deel te nemen aan dit onderzoek zult u meer inzicht krijgen in het proces van de gebiedsontwikkeling. Het bredere doel van dit onderzoek is waardevolle kennisdeling met praktische inzichten voor toekomstige gebiedsontwikkelingen.

Uw privacy is en blijft maximaal beschermd. Er wordt op geen enkele wijze vertrouwelijke informatie of persoonsgegevens van of over u naar buiten gebracht, waardoor iemand u zal kunnen herkennen. Voordat de onderzoeksgegevens naar buiten gebracht worden, worden uw gegevens **anoniem** gemaakt: geanonimiseerd. De geanonimiseerde data zal worden gebruikt in de publicatie van dit onderzoek in de TU Delft Repository. De primaire data, zoals audio-opnamen, formulieren en andere documenten die in het kader van deze studie worden gemaakt of verzameld, worden opgeslagen op een beveiligde (versleutelde) locatie. Na afronding van het onderzoek op 30 juni 2023 worden deze documenten verwijderd.

Als u vragen heeft over dit onderzoek, kunt u contact met mij opnemen: Isis Sep, i.sep@fakton.com, +31 6 10 82 84 08. Bij akkoord voor deelname aan dit onderzoek verzoek ik u vriendelijk om onderstaande toestemmingsverklaring in te vullen en te ondertekenen.

Toestemmingsverklaring

Met uw ondertekening van dit document geeft u aan dat u goed bent geïnformeerd over het onderzoek, de manier waarop de onderzoeksgegevens worden verzameld, gebruikt en behandeld en welke eventuele risico's u zou kunnen lopen door te participeren in dit onderzoek.

- Ik verklaar op een voor mij duidelijke wijze te zijn ingelicht over de aard, methode, doel en eventuele risico's van het onderzoek.
- Mijn vragen zijn naar tevredenheid beantwoord.
- Ik begrijp dat het geluids- en/of beeldmateriaal (of de bewerking daarvan) en de overige verzamelde gegevens uitsluitend voor analyse en wetenschappelijke presentatie en publicaties zal worden gebruikt.
- Ik behoud me daarbij het recht voor om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen.
- Ik begrijp dat mijn persoonlijke informatie wordt verzameld ten behoeve van het onderzoek. De onderzoeksleider draagt er zorg voor dat ik niet ben te identificeren in door het onderzoek naar buiten gebrachte gegevens, rapporten of artikelen. Mijn privacy is gewaarborgd als deelnemer aan dit onderzoek.
- Ik heb kennis genomen van dit formulier en ik stem in met deelname aan het onderzoek.

Handtekening en datum

_____ _____ _____

Naam Deelnemer Handtekening Datum

Ik, de onderzoeksleider, verklaar dat ik de informatie en het toestemmingsformulier correct en naar het beste van mijn vermogen aan de deelnemer heb toegelicht. Ik ben bereid nog opkomende vragen over het onderzoek te beantwoorden.

_____ _____ _____

Naam Onderzoeker Handtekening Datum