Investigating collaborative governance capacities in Amsterdam's climate adaptation strategy:

THE CASE OF TWO PROJECTS

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Preface

In front of you lies my thesis, marking the end of another era in my life. It serves as the cherry on top of my academic journey, bringing together the knowledge, interactions, and opportunities I've encountered during my time at AMS Institute for MSc MADE.

As my thesis illustrates how theory and practice can differ from each other, I can confirm that my own experience mirrored this divergence. I have had moments of encouragement and motivation, but also instances of endless iterations and accompanying breakdowns, from which I managed to get up again. Overall, I talked with many inspiring individuals and eventually found enjoyment in gaining control over the chaos, while also becoming a familiar face at the nearby coffee house.

As for the acknowledgements, I want to express my gratitude to my supervisors, Karin Peters and Simbarashe Chereni, for generously sharing their expertise and providing guidance. Your critical ideas and suggestions always got me back on the right track.

Finally, I want to thank my closest loved ones. To my family and friends, who patiently listened to my thesis-related rants despite not fully understanding what it is about. In particular, I thank Wing and Olivia, with whom I shared many thesis working sessions. We did it! Lastly, but not least, to Dwight, thank you for your consistent support and encouraging words.

I am looking forward to my further career and journey ahead. But before that, I hope you find enjoyment in reading my thesis.

Kristen Valdez
Amsterdam, April 2024

Abstract

Given the urgency of addressing climate change impacts, collaborations between local governments and diverse stakeholders are imperative for successful climate adaptation efforts in urban areas. This master thesis explores the role of collaborative governance capacities in policy and their implementations in practice within the context of the climate adaptation strategy of Amsterdam *(Strategie Klimaatadaptatie Amsterdam).* Through document evidence and interviews analysed in Atlas ti, the study examines four key collaborative governance capacities: adaptive inclusivity, integration of communication methods, reflectiveness on past projects, and the availability of resources. Findings reveal how the presence or lack of these capacities influence the collaboration outcomes in 2 climate adaptation projects, highlighting the importance of context-specific strategies and flexibility in municipal roles. Despite challenges such as institutional constraints and difficulty engaging vulnerable groups, the municipality demonstrates a commitment to enhancing collaborations in their strategy. The study underscores the necessity of a holistic approach to implementing collaborative governance capacities for effective climate adaptation, offering recommendations for future policy and practice.

Key words: *Collaborative Governance, Governance Capacities, Climate Adaptation, Policy Implementation, Cross-sectoral Collaboration*

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Chapter 1

INTRODUCTION

Chapter 1: Introduction

1.1. Metropolitan challenge: climate change and need for adaptation through collaborations

In an era marked by unprecedented climatic changes, urban areas are at the forefront of facing and adapting to climate related challenges. Challenges such as pluvial flooding, heat stress and drought do not only force cities to take action to prevent climate-related risks, but also require them to adapt to new conditions. Notably, they are particularly vulnerable due to the high population densities and ongoing expansion through a petrified environment. These processes amplify the effects of the above-mentioned climate challenges (Leighton, 2019; UN-Habitat, 2011).

In response to these challenges, national governments are developing and implementing public policies as they have a key role to play in climate adaptation (Henstra, 2015). Adaptation measures adopted at higher levels, like the European or national level, are often expected to be integrated into local initiatives. This places pressure on local governments to take responsibility for enhancing the city's climate resilience (Braunschweiger & Putz, 2021), and the actual implementation of practical measures is not progressing equally well. The difficulties that come with coordinating these broader measures into concrete, local measures are well-documented in the existing literature (Jordan & Lenschow, 2009; Braunschweiger & Pütz, 2021). Integrating adaptation goals into regular policies or specific departments within institutions often relies on the driving force of extreme events for this integration (Uittenbroek et al., 2014). As this is the case, the implementation of policy at lower levels requires strong political commitment. This presents a critical test for local institutions to alter their existing urban development through climate adaptive measures.

In addition, as many global agreements and frameworks such as the Paris Agreement (United Nations, 2015) put high expectations on involved national and local actors to collaboratively implement these agreements, it amplified the need of fostering a *new governance approach* in which citizens, the private sector, the community, and non-governmental actors are involved (Denters, 2011). In this vein, several studies have highlighted the importance of collaboration in the field of climate adaptation (Newig et al., 2018; Coenen, 2011) and decision-makers at the local level often see it as a strategic choice to achieve specific goals. They also see it as a mechanism for addressing public purposes that require the collective efforts of various stakeholders. This highlights the importance of examining the capacities of local governments like Amsterdam, to collaborate effectively with stakeholders especially by examining their adaptation strategies and how they are operationalised.

1.2. Amsterdam's Climate Adaptation Strategy

Amsterdam, like many urban areas world-wide, stands at the forefront of facing and adapting to climate related challenges (Municipality of Amsterdam, 2020a). In recent years, Amsterdam has experienced obvious impacts from climate change. In 2014, a cloudburst caused severe flooding, with many residents suffering from flooded souterrains, living rooms and streets (Municipality of Amsterdam, 2020a). A specific example was evident in the Rivierenbuurt in the Southern part of Amsterdam. As the neighborhood is characterized by extensive asphalt and tiled surfaces, it prevented rainwater from seeping into the ground. This overloaded the sewers and caused flooding in the streets during the cloudburst (Weerproof, 2024). Situations like this have prompted the city to get ready for a climate-proof redevelopment of the city.

Figure 1 and 2: The Rivierenbuurt in 2014 after the cloudburst (left) and the Rivierenbuurt after climate-proof redevelopment in 2021 (right). Sources: Steenman, 2023 and Sweco, 2021.

In response to these challenges, the municipality of Amsterdam has launched the Climate Adaptation Strategy (*Strategie Klimaatadaptatie)* in 2020. This strategy is a comprehensive approach that addresses ways to act against extreme weather conditions such as heat, drought and flood risks (Municipality of Amsterdam, 2020a). Within their strategy, the municipality highlights their shared responsibility with diverse stakeholders in the city to address climate change, recognizing it as a task beyond the capacity of the municipality alone.

The shared responsibility is needed as Amsterdam's ground is owned and used by a variety of public and private stakeholders with different needs and capacities to engage in adapting to climate change (Municipality of Amsterdam, 2020a). This fragmentation of land ownership necessitates collaborations with various stakeholders, including private businesses, local organizations, and residents to achieve the public goal of climate adaptation (Newig et al., 2018). Moreover, their aim relates to the notion of Campos (2016), who advocates for a shift from technical solutions to climate change to a multidisciplinary approach and the engagement of diverse actors in decision-making processes (p.537).

Earlier research has demonstrated that leveraging cross-partnership collaborations for decision-making can significantly improve environmental outcomes, such as improving climate resilience (Coenen, 2010; Morton et al., 2011). For instance, initiatives like greening urban spaces have the potential to reduce the impact of extreme weather events and community-based adaptation efforts, and involving local communities in decision-making processes, offers effective strategies for climate resilience. This collaborative approach contrasts with top-down decision-making methods (Newig et al., 2018). In addition, the collaboration of public and private actors within these community-led initiatives can better align public and private interests and contribute to the overall governance capacity to solve societal problems (van Popering-Verkerk et al., 2022, p.1770). G*overnance capacities* refer to the ability of governmental and non-governmental actors to steer societal efforts and solve problems (Cuthill & Fien, 2005).

1.3. Research objectives and questions

The aim of this study is to examine the collaborative governance capacities in Amsterdam's climate adaptation strategy and how they manifest in projects. The main research question this study aims to answer is:

"In what ways do the collaborative governance capacities, as outlined in the climate adaptation strategy of Amsterdam, contribute to the collaborative outcomes within two climate adaptation projects?"

In addition, this main question will be substantiated by the following sub-questions:

i. In what ways do the existing collaborative governance capacities shape collaborative processes within the climate adaptation strategy?
ii. How do these capacities support or hinder the collaborations within two projects the 'Onze Straat Actie' project and the 'RESILIO-project'?

1.4. Justification for study

This section discusses the relevance of the objectives and expected results of the thesis research to both international and national policy ambitions and current academic discourses connecting global efforts with the need to tackle climate change at the local level.

1.4.1. Policy and social relevance

International policies and ambitions

In recent decades, international bodies like the Intergovernmental Panel on Climate Change (IPCC) and the United Nations have urgently called for action, providing comprehensive scientific insights on climate change, potential climate mitigation and adaptation strategies (IPCC, n.d), and goals towards a sustainable future (United

Nations, n.d). This research contributes to broader efforts to achieve Sustainable Development Goals (SDGs) *11* (to make cities inclusive, safe, resilient, and sustainable) and *13* (to take urgent action to combat climate change and its impacts) (United Nations, n.d.). The study aligns with the above-mentioned global ambitions by examining the local governance conditions suitable for their realization at the local level, emphasizing the role of community engagement in addressing climate challenges.

Moreover, this research provides insights in line with European policies, most notably the EU Green Deal since authorities on both local and regional level are seen as representatives that help in realizing overarching environmental goals (European Commission, 2023). As horizontal integration of EU policies is relevant, this study attempts to make a contribution on showing how the climate adaptation policy and its connected initiatives fit into the bigger picture of Europe's sustainability goals.

National and local policies

The National Environmental Vision (*Nationale Omgevingsvisie* - NOVI) places increasing importance on climate adaptation at the national level. It establishes the overarching framework for spatial development in the Netherlands, providing context and alignment with national goals (Rijksoverheid, 2023). As national policies put a large part of the responsibility for climate adaptation on local strategies and policies, municipalities play an important role. Moreover, the Dutch government attaches increasing importance to participation of residents and other stakeholders in policy development and implementation (Sociaal en Cultureel Planbureau, 2022). With the introduction of the Omgevingswet (Environment Act), scheduled for January 1, 2024, participation will even take a central position in the development of spatial planning policies. For policies around climate adaptation, local authorities like municipalities will have more input and room to realize their own ambitions (Kennisportaal Klimaatadaptatie, n.d). Next, climate adaptation is also a social issue that is an important part of the new law, as the Omgevingswet places much greater emphasis on liveability and health as important themes for policy and regulation in the physical environment. At the level of the municipality of Amsterdam, the *'Plan- en besluitsvormingsproces ruimtelijke maatregelen'*, also called the Plaberum, implemented by the municipality in 2017, subsequently requires that citizens' and entrepreneurs be involved as early as possible in the planning of new developments (Gemeente Amsterdam, n.d; Morel et al., 2021). In conclusion, the National Environmental Vision (NOVI) and the upcoming Omgevingswet (Environment Act) highlight the pivotal role of municipalities, especially Amsterdam, in climate adaptation. The emphasis on resident and stakeholder participation underscores the collaborative nature of policy development. Successfully using collaboration capacities involving both municipal and local levels, is crucial for attaining climate-adaptation related goals.

The social relevance of this study lies in its direct impact on the stakeholders of Amsterdam as collaborations with them are essential for ensuring the city's resilience to climate challenges. The emphasis on shared responsibility and collaboration with the city aligns with the need for active involvement of residents in adapting their living environments to climate change. By addressing this aspect, the study contributes to highlighting the need for collaboration with the community, which aligns with the municipality's broader societal goals of creating livable and climate-resilient cities (Municipality of Amsterdam, 2023). More importantly, climate adaptation strategies are not only technical innovations, but they must also be able to adapt to the social context in which climate changes take place (Termeer et al., 2012).

The scientific relevance of this study lies in its focus on the collaborative governance (CG) capacities within Amsterdam's climate adaptation strategy. While the potential of collaborative governance in climate adaptation has been gaining its recognition in major cities around the world (Innes & Booher, 2003; Brink & Wamsler, 2017), there is still a limited body of academic literature on the topic of the collaborative governance capacities needed by local institutions to collectively implement these climate adaptation measures in practice (Braunschweiger & Pütz, 2021).

In practice, the translation of governance capacities into concrete adaptation actions and products seems less apparent as they are often intertwined and influenced by institutional and contextual factors. The literature shows how practical policy implementation can be hampered by limited resources (Vogel et al., 2015), bureaucratic processes (af Rosenschöld, 2019; Malloy et al., 2020), and communication gaps between cross-level stakeholders (Storbjörk, 2010; Hamilton et al., 2018). Overall, the complexity of real-world contexts may result in discrepancies between what is outlined in policy documents and what occurs in practice (Biswas, 2023). However, other scholars show how collaborative processes may have positive influences on the capacity of institutions to deal with crises (Innes and Booher, 2003).

The knowledge gap identified in this thesis lies in understanding how collaborative governance capacities outlined in Amsterdam's climate adaptation strategy translate into practical implementation within climate adaptation projects. This is important as theory suggests that there are often discrepancies between policy intentions and actual outcomes (Runhaar et al., 2018). Given the novelty of the climate adaptation strategy and considering that it is still in its policy implementation phase, the municipality's collaboration processes can provide insights into the practical implementation within climate adaptation projects. From this vantage point, this research attempts to investigate the collaborative governance (CG) capacities of the municipality of Amsterdam within the context of the strategy.

1.5. Report outline

The first chapter has introduced the urban challenge of climate change in Amsterdam and the necessity for collaborative adaptation efforts. Furthermore, it introduced the aim and research questions needed for examining the collaborative governance capacities in the climate adaptation strategy. The remaining structure of this thesis is structured into 5 more chapters. In chapter 2, the theoretical framework of collaborative governance and its capacities is discussed. Thereafter, the methodologies, including the research design, data collection, data analysis methods and background of the two selected projects is explained in chapter 3. Chapter 4 introduces the climate adaptation strategy through the lens of the identified collaborative governance (CG) capacities in theory. Chapter 5 sets out the results by identifying the collaborative governance capacities in the climate adaptation strategy and their implications for climate adaptation projects. Subsequently, chapter 6 discusses the results through theory, the limitations, and makes recommendations for future research. The last part of this chapter draws an overall conclusion.

Chapter 2

LITERATURE REVIEW

Chapter 2: Literature Review

In this chapter governance capacities are discussed through the lens of collaborative governance and climate adaptation theory. Lastly, this chapter will review past studies related to collaborative governance capacities.

2.1. Collaborative Governance

Challenges related to collaborations with citizens on climate adaptation are usually described within frameworks of governance (Hügel and Davies, 2020, p.13). Stoker (2004) defines governance as *the rules and forms that guide collective decision-making.* Decision-making can have both formal and informal characteristics, involving rules and authorities within institutions for decision-making as well as informal interactions or discussions with individuals or groups. Central to this concept is collectivity, in the sense that decision-making is not done by a single individual but by groups of individuals, organizations or systems (p.3).

The term collaborative governance (CG) is used in different ways, e.g., to explain cooperation across departments in public services (Ansell & Gash, 2008; Emerson et al., 2012, Emerson & Nabatchi, 2015) and to describe collaborative urban planning through cross-boundary collaboration (Healey, 2007) which highlights the importance of joint and decentralized decision-making. In 2018, Newig et al. made a conceptual framework that uses CG to theorize *public decision-making processes* as opposed to the traditional top-down decision making. Often, decision-makers have the option to choose the extent to which their decision-making process will be collaborative (p.271). Participation can not only lead to better but also to worse environmental outcomes, depending on the conditions in which it is used. For instance, participation can be a long trajectory which requires both financial investments and more human capacities. This turns collaboration and participation into choices rather than necessities, transforming them into strategic interventions that can contribute to achieving environmental goals. In this research, Newig et al's (2018) definition of collaborative governance will be used: *"Processes and structures of public decision making that engage actors from the private sector, civil society, and/or the public at large, with varying degrees of communication, collaboration, and delegation of decision power to participants (p.273).* This is explained through three governance dimensions:

1. Breadth of involvement: The range of stakeholders and other actors included in the process (e.g., involvement of few selected experts, representatives of organized groups, or citizens vs. the general public).
2. Communication and collaboration: The manner, direction, and intensity of information flows (e.g., one-way information provision vs. collaborative development of preferences).
3. Power delegation to participants: The extent to which participants are afforded influence over the decisions to be taken.

Similarly, Emerson et al. (2011) and Emerson & Nabachi (2015) use the following definition for collaborative governance *'to carry out a public purpose that could otherwise not be accomplished'* (p.3). This composed definition emphasizes the focus on collaboration between the different stakeholders for public decision making to be successful. In addition, it enriches the understanding of collaborative governance by highlighting its dual nature: as a strategic choice that decision-makers can employ to achieve specific goals, and as a mechanism for addressing public purposes that require the collective efforts of various stakeholders.

2.1.1. Collaborative governance for climate adaptation: advantages and disadvantages

Regarding collaborative governance for climate adaptation, Brink & Wamsler (2018) emphasize the importance of considering initiatives aimed at increasing citizen awareness and understanding the municipality's roles and responsibilities in adaptation processes. Moreover, they underscore *interdepartmental coordination* within municipal structures to effectively support and leverage collaborations between municipalities and citizens. They argue how essential this is for mainstreaming adaptation efforts within organizations. Collaborative processes have a positive influence on the capacity of institutions to deal with crises (Innes and Booher, 2003) and positive outcomes around CG are argued to be drivers of climate adaptation (Oberlack and Neumarker, 2011).

While numerous scholars highlight the favorable consequences of collaborative governance for climate adaptation, others argue that it also harbors drawbacks. According to Biesbroek et al. (2011) and Moser & Ekstrom (2010), barriers to adaptation encompass conditions hindering the development and implementation of climate adaptation strategies, such as uncertainty, knowledge gaps, and deficiencies in policy, institutions, and financial resources. Barriers are defined as "obstacles that can be overcome with concerted effort, creative management, change of thinking, prioritization, and related shifts in resources" (Moser & Ekstrom, 2010, p. 22027). In addition, Adger et al. (2009) suggests that many barriers to adaptation, especially those related to society, can actually be changed with enough political support, community backing, resources and effort. However, some barriers might still make adaptation harder or less effective, and they might require expensive changes that could lead to missed changes or higher costs.

As previously mentioned, collaborative governance and the involvement of citizens and stakeholders is argued to enhance environmental outcomes when compared to top-down decision-making (Newig et al., 2018). More specifically, using collaborative processes in environmental sectors can for example *improve legitimacy and support, facilitate public learning,* and *produce new information based on local knowledge* and *generate better, previously unconsidered solutions* (Coenen, 2010; Morton et al., 2011). However, participatory approaches can also have certain disadvantages, such as *being*

unrepresentative of the general population, power imbalances that skew decisions and underemphasizing important expert knowledge (Innes & Booher, 2018; Provan & Milward, 2001). Moreover, it is most likely more costly and time consuming when the aim is to make participation as inclusive as possible (Dietz & Stern, 2008; Uittenbroek et al., 2018). Therefore, some scholars argue that the emphasis should be on ensuring the comprehensive representation of interests rather than pursuing full inclusion (Innes and Booher, 1999; Mees, Driessen, and Runhaar, 2014).

In addition, collaboration may also create a burden on local governance (Naught, 2023) as many global agreements and frameworks such as the Paris Agreement (United Nations, 2015a; United Nations 2015b) put high expectations on involved actors to collaboratively implement these agreements (p.1). This in return amplifies the need of fostering a governance approach in which citizens, the private sector, the community, and non-governmental actors are involved (Denters, 2011).

2.2. Collaborative governance capacities: leading role in climate adaptation

In the field of urban resilience, particularly governance-related capacities are found to play a crucial role in shaping collaborative processes (Healey, 1998). Governance capacities are the capacities of a governance system to learn, experiment and adapt creatively to threats and opportunities (p.7). Morgan (2006) defines capacities as: "*that emergent combination of attributes that enables a human system to create developmental value*" (p. 8). Specifically, it refers to the ability of governmental and non-governmental actors to steer societal efforts such as organizing awareness campaigns, volunteer programs and educational programs to engage residents in sustainable practices (Cuthill & Fien, 2005). The collaboration of public and private actors within climate adaptation initiatives can align public and private interests and contribute to the overall governance capacity to solve societal problems (van Popering-Verkerk et al., 2022, p.1770). With above-mentioned definition, this research will look into the ways in which governance capacities contribute to collaborations of the municipality with stakeholders in the city. The adopted collaborative governance (CG) capacities are considered as *the abilities, resources, and skills* that the municipality of Amsterdam owns to address climate-related challenges and accompanying climate adaptation measures.

When looking at practical applications of governance capacities, it can be seen that municipalities often take on a *leadership role* in decision-making processes, while actively seeking to engage residents, local organisations or businesses. In the literature, this is often known as a participatory or collaborative decision-making processes (Newig et al., 2018). There are several ways in which municipalities shape these processes. Reiter et al. (2018) explored different roles of local governments in Canada and Australia, focusing on collaborative governance. One example is *leadership by municipality* in which the municipality takes a leading role in initiating and guiding

the decision-making process. They may set the agenda, define the scope of the decision, and provide essential information and resources. Another example is *engaging residents and local organizations.* Here, the municipality actively involves residents and local organizations in the decision-making process. This involvement can take various forms, such as public consultations, community meetings, workshops, or collaborative planning sessions. Furthermore, the municipality can take on the *facilitation of the collaborative process.* Here, the municipality acts as a facilitator, ensuring that the decision-making process is inclusive, transparent, and participatory. They provide opportunities for stakeholders to express their opinions, share relevant information, and contribute to the decision. Thus, municipalities often have a facilitating and leading role in shaping collaboration processes.

2.3. Collaborative Governance Capacities Framework

To properly measure the chosen capacities, a clear definition must be provided in this research. The CG capacities are considered as *the abilities, resources, and skills that a municipality possess to address climate-related challenges and accompanying climate adaptation measures*. By looking at the governance capacities through the lens of collaborative governance, this research examines how these capacities are shaping collaborations within the context of the climate adaptation strategy. The collaborative governance (CG) capacities on which this thesis focuses in are based on the following governance-related urban resilience capacities by Datola (2023) reviewed from the literature: *Inclusivity* (Tanner et al., 2009; Ayda Eraydin, 2012), *Integration* (Coaffee, 2008; Tyler and Moench, 2012), *Resourcefulness* (Spaans & Waterhout, 2017) and *Reflectiveness* (Leichecnko, 2011). Datola (2023) identified and analyzed the main characteristics of *urban resilience* capacities and concluded that *inclusivity, integration, reflectiveness,* and *resources* are the most important governance-related urban resilience capacities for a transformative approach to reach urban resilience in cities. Urban resilience capacities are essential capacities to enhance or maintain resilience in urban systems (p.7). Although many dimensions of urban resilience capacities exist, ranging from *the infrastructure, economic and environmental* dimension to the *social and governance* dimension, this research focusses on the identified urban resilience capacities related to the governance dimension. Therefore, an adapted *collaborative governance capacity framework*, built upon Datola's (2023) model was used to examine the CG capacities in Amsterdam's climate adaptation strategy.

The framework focuses on the collaborations of diverse stakeholders in decision-making and on the use of various communication and collaboration strategies (Newig et al., 2018). Notably, collaborative governance and governance capacities are closely related concepts in this research. Figure 3 below provides a graphical representation of these capacities and examples of the interview topic list.

Governance-related capacities are found to play a crucial role in shaping collaborative processes (Healey, 1998) in relation to urban resilience. Datola (2023) identified and analyzed main characteristics of *urban resilience* capacities and concluded that *inclusivity, integration, reflectiveness,* and *resources* are the most important governance-related urban resilience capacities for a transformative approach to reach urban resilience in cities. Urban resilience capacities are essential capacities to enhance or maintain resilience in urban systems (p.7). Although many dimensions of urban resilience capacities exist, ranging from *the infrastructure, economic and environmental* dimension to the *social and governance* dimension, this research follows focusses on the identified urban resilience capacities related to the governance dimension.

An adapted *collaborative governance capacity framework*, built upon Datola's (2023) model, will be used to examine the CG capacities in Amsterdam's climate adaptation strategy. This framework will focus on understanding the collaborations of diverse stakeholders in decision-making and on the use of various communication and collaboration strategies (Newig et al., 2018). By looking at the governance capacities through the lens of collaborative governance, this research will examine how these capacities are shaping collaborations within the context of the climate adaptation strategy. Figure 3 below provides a graphical representation of these capacities.

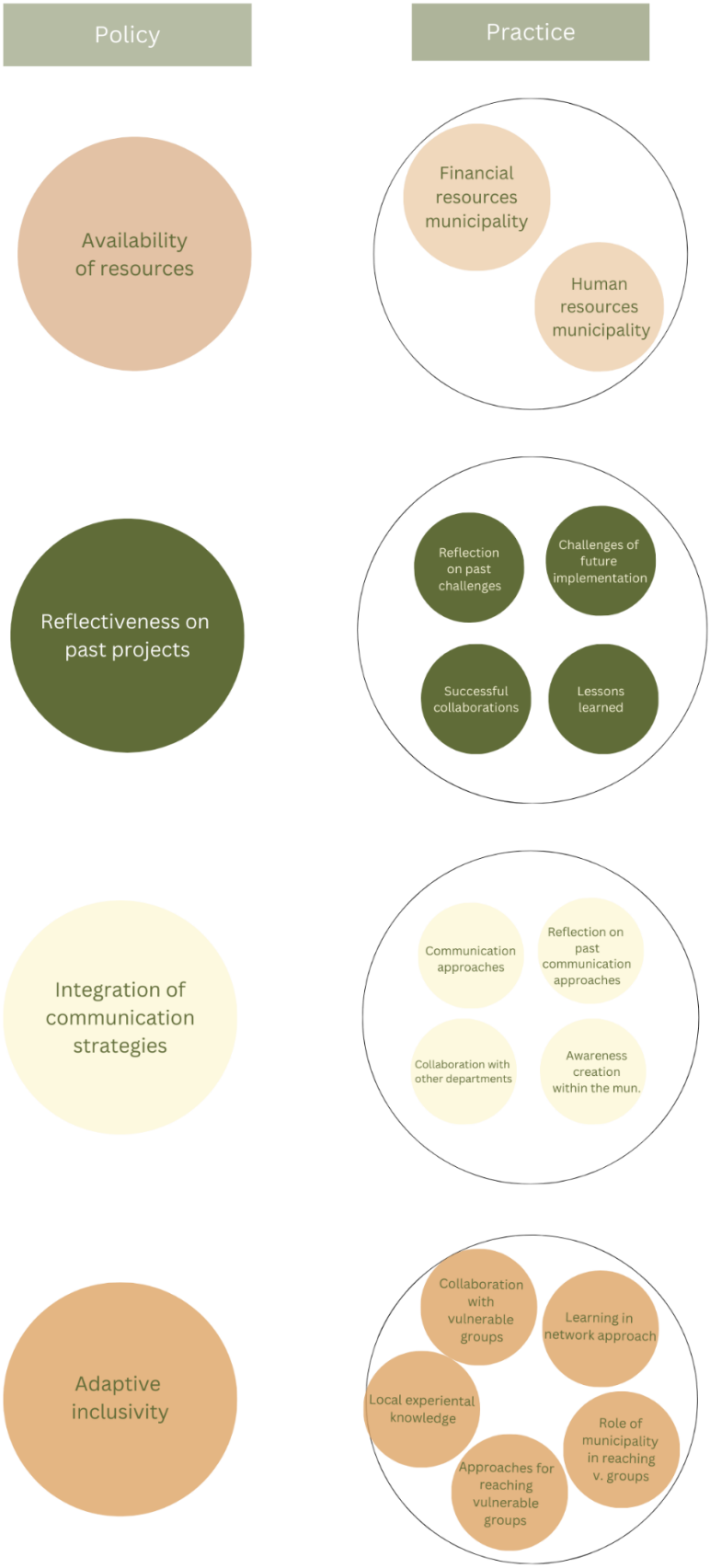

Figure 3: Collaborative Governance Capacity Framework. Adapted from Datola (2023).

The collaborative governance capacity framework shows that governance capacities are specified into *adaptive inclusivity, integration of communication methods, reflectiveness on past experiences* and the *availability of resources.* This framework helps to examine their influence on collaborative processes within climate adaptation. A rationale for the importance of each capacity in the context of Amsterdam is given below.

2.3.1. Adaptive Inclusivity

The first capacity, adaptive inclusivity, is the extent to which residents *and involved stakeholders have access to municipal infrastructure and services, including providing an opportunity for all people to participate in decision-making processes* (Tanner et al., 2009; Ayda Eraydin, 2012). Inclusivity is essential for effective collaboration in climate adaptation as inclusive decision-making processes may lead to more effective outcomes (Innes and Booher, 2003). Moreover, through broad consultation and engagement of communities, their needs can be better addressed. An inclusive approach contributes thus to a sense of shared ownership or a joint vision to build city resilience (ARUP, 2014; Spaans & Waterhout, 2017). While inclusive approaches are often described positively, it is important to acknowledge that achieving a fully inclusive process is difficult and often not feasible due to internal and external challenges for local organizations, making it more ideal to aim for group representation rather than full inclusiveness (Innes and Booher, 1999; Mees, Driessen, and Runhaar, 2014). Inclusiveness within climate adaptation literature mostly focuses on local level, however, it also highlights the relevance on higher scale levels and the need for cooperation across the scales (Pham & Saner, 2021). Pham and Saner emphasize how bottom-up initiatives are often facilitated and financed by national-scale resources to support the local-level implementation of adaptation measures (p.45). As this is the case, CG capacities can for instance be important for resource allocation, as well as indicating the importance of collaboration and coordination between different administrative levels and not only the local level.

Who or what adapts

Inclusive adaptation requires knowledge and information from both scientists and local communities, as an extension of expert knowledge to create inclusive interventions (Ramirez-Villegas & Khoury, 2013). Who should be involved in adaptation processes is not always the same but should include a broad spectrum of actors, such as local people and communities, governments (local and national levels), the private sector, NGOs and civil society organizations, and other networks (Sprain, 2016). Many authors argue that inclusive climate adaptation should benefit vulnerable groups, and support the poor, indigenous people, women, smallholder farmers and resource-dependent people (Pham & Sener, 2021) and that they should be fully involved in decision-making processes for reasons of both justice and efficiency (Few et al., 2007).

Adaptive inclusivity underscores the significance of incorporating local experiential knowledge, which offers perspectives from vulnerable stakeholders. Several scholars argue that local knowledge serves as a crucial element of the *adaptive capacity* on local level (Klenk et al., 2017), enabling local governments to formulate context-specific adaptation strategies. In addition, local knowledge provides communities with the flexibility to adapt to change and cope with uncertainty (p.4). However, the way this knowledge can be utilized depends upon its integration with governmental support. In the example of Latin America, local communities have experienced a decline in their ability to use local knowledge for adaptation due to reduction in government support of key social welfare programs and a neoliberal reform (Eakin & Lemos, 2006).

Learning does not only take place within the municipal organization, but also in networks around climate adaptation where municipalities are part of (Kristianssen & Granberg, 2021). These networks can facilitate exchange of experiences and further learning processes. Specifically, local examples highlight how individual adaptative practices could compensate when institutions lack knowledge or best practices to learn. As an example, in the municipality Lilla Edet, Sweden, people regularly provided the local authorities with information on local groundwater level through special equipment that measures these levels. This highlights the importance of *flexibility* and *inclusiveness* of adaptation systems in which stakeholders from individual, household or community level should be involved (Brink & Wamsler, 2014). Within the context of Amsterdam's climate adaptation strategy, the municipality has built a network called *Amsterdam Rainproof* with 90 partners in Amsterdam to make the city more resilient against downpours (Municipality of Amsterdam, 2022). Within this network approach, the municipality tries to facilitate climate adaptation projects, bring together different stakeholders, and learn from collaborations with partners (p. 13).

Moreover, several authors highlight the *co-production* of local knowledge by emphasizing collaborative knowledge production between communities and certified experts. It is an empowering process that ensures more place-specific knowledge, resources, values, and fosters community-led discussions (Klenk et al., 2017). In a case study in Tanzania, indigenous observations and their communication needs were identified as local knowledge that supports adaptation processes (Naess, 2013, p.101). Naess furthermore argues that understanding the *power relations* and the *interaction of stakeholders in government strategies* should be considered as local knowledge is context-specific and dynamic. Thus, it is crucial to know what target group should be include in adaptation,and how their local knowledge can be used in decision-making processes and how this knowledge is used in government strategies.

Motivating inclusive processes

Attempts to achieve inclusive processes requires institutions to encourage external stakeholders to participate within their organized climate adaptation projects. Glavovic

(2014) argues that there are four elements through which inclusive approaches are motivated:

(i) creating safe arenas for public debate so that participants can explore and develop a common understanding of adaptation concerns and engage with different types of knowledge and knowledge claims *(a personal approach);*
(ii) building common purpose and stimulating participation in community activities *(supporting residents' motivation);*
(iii) deepening community problem-solving capacity by improving participants' understanding and constructively engaging them in community life, on a sustained basis *(creating awareness amongst residents)*; and
(iv) facilitating community collaboration through cross-scalar processes of authentic and inclusive dialogue, visioning, negotiation, and cooperation *(integration of communication methods, working together with important stakeholders).*

Moreover, Lee (2017) showed in a study on participation of local farmers in Kenya, that identifying existing networks such as community-based organizations, local groups, households and individuals, can create more willingness between people to actively participate in climate adaptation programs and potentially contribute to adaptation inclusiveness, in terms of broader inclusion and more just outcomes (p. 73). In addition, adaptation inclusiveness can be motivated by creating a sense of solidarity within functioning communities, meaning adaptation should be a collective instead of individual effort (Pham & Sener, 2016).

Changing roles of municipality: facilitating and enabling roles

Inclusive adaptation strongly depends on the role local authorities take within climate adaptation. Brink & Wamsler (2018) argue that interactions between municipality and citizens usually involve individuals with higher levels of education, proficiency in language and knowledge of administrative procedures (p.93). Moreover, they emphasize the importance of recognizing that tenants usually have limited influence on climate adaptation compared to homeowners, due to the link between renting and vulnerability to environmental hazards (Cutter et al., 2003). Furthermore, Cutter et al. (2003) raise the issue of *responsibility* around climate adaptation. Citizen engagement may result in shifting the accountability to citizens; however, it also has the potential to empower them to take proactive measures, particularly benefiting those most vulnerable. Therefore, when stakeholders are seen as responsible by the municipality, it should be accompanied with essential support such as information and incentives. The issue of responsibility is also mentioned in Amsterdam's climate adaptation strategy, as climate adaptation is seen as a shared responsibility of the municipality with the rest of the city (Municipality of Amsterdam, 2022).

Lastly, local governments are recently shifting towards networking, stimulating and facilitating roles (Mees et al., 2017). These new roles are important not only to make informed decisions, but also to create relevant insights that can change policy. This creates an arena for more vulnerable groups to take space (Naess, 2012). If the municipality wants to take on these new roles, it is important to have the flexibility and support of its own municipal organization to facilitate such initiatives (Mees et al., 2017). These changing roles of both the municipality and residents lead to new ways of engaging a broader group of citizens. In many cases, it is the frontrunners who are reached by the municipality. However, by leveraging the strengths of neighbourhoods, a larger, usually more disadvantaged group of residents can be reached (Pham & Sener, 2016).

Regarding further roles of municipalities, they can attempt to use soft governance capacities (Yazar et al., 2022) by using more informal ways to integrate climate adaptation, such as public awareness campaigns and network events. Soft governance capacities are capacities that have limited substantive authority but high interests in integrating climate change into other, more informal agencies. Usually, local authorities have strong institutional contexts (Schoenefeld and Jordan, 2020), such as clear legal frameworks, dedicated environmental departments with climate plans that have binding measures and well-defined regulatory bodies. Although soft governance capacities result in less powerful entries in the existing institutional setting, they are important as they are better in adapting to local circumstances and contexts, in connecting to the motivation of residents to adapt (Frederiksson et al., 2011) in their external network and in their ability to influence the motivations of key actors and dealing with complex regulatory issues in environmental policy (Koutalaki et al., 2010).

2.3.2. Integration of communication methods

Datola (2023, p.25) defines integration as *making sure that plans and actions are integrated across multiple departments and external organizations* (cf. Coaffee, 2008; Tyler & Moench, 2012). It relates to effectively coordinating diverse elements such as policies, initiatives, and communication strategies (Fastiggi et al., 2020). This study will focus on the *integration of communication methods* within the climate adaptation strategy. Effective communication is essential for integration processes in urban resilient cities. It necessitates the exchange of information across various scales, departments, and systems (Spanjaard & Water, 2017). *Integration of communication strategies* includes sharing information and coordinating actions across various departments and external organizations involved in climate adaptation to make a shared understanding of climate risks and adaptation measures possible. In this context, internal and horizontal coordination serve as indicators of the capacity to integrate communication strategies, both internally and externally (Storbjörk, 2010).

Internal coordination

Internal coordination refers to communication channels within the municipality to ensure that climate-related information is shared seamlessly among different departments (Storbjörk, 2010). One of the barriers identified is the lack of proper forums for learning within municipalities (Kristianssen & Granberg, 2021). In two case studies in Sweden, Storbjörk (2010) identifies the lack of cross-sectoral communication, interaction and learning between the different departments of the municipality and concludes that learning predominantly spreads on the individual level rather than through organizations at large (p. 251). This makes it especially difficult for large municipalities to have integrated processes around climate adaptation, as education, awareness and openness to other perspectives are needed to move entire organizations toward transformative approaches (Mees et al., 2018).

Horizontal coordination

Horizontal coordination requires communication methods that encourage partnerships and collaboration with external stakeholders. These effective communication methods can in turn create a shared understanding of climate risks and adaptation measures within these collaborations. An example of effective communication is providing information on how people can help local governments with climate adaptation (Brink & Wamsler, 2014). In Mälmo, Sweden, the municipality emphasized the positive effect of individual adaptation measures by conducting an information campaign on how planting trees in citizens' own gardens could result in a better environment. Other examples of inspiring people to take additional adaptation measures include *financial incentives* such as subsidies for people who convert their unused land into stormwater wetlands and *visits from technical staff with information* on how residents can block off their sewer systems (p.83). Moreover, horizontal coordination is important as climate adaptation does not only rely on collaboration among diverse institutions, including local authorities and organizations at various levels but also on the interaction between institutions and citizens, specifically, vulnerable communities and the broader public (Wamsler & Brink, 2015).

2.3.3. Reflectiveness on past experiences

Reflectiveness on past projects

The reflectiveness of an institution such as the municipality can be analysed by looking at what it learns from different local events and crises (Kristianssen & Granberg, 2021). The presence of reflectiveness on past projects allows for the possible integration of valuable insights into future decision-making processes, such as the previously mentioned local knowledge (Naess, 2013).

Institutional challenges for reflective capacity

In Brink & Wamsler's (2017) example of collaborative governance in climate adaptation,

they argue that municipalities still struggle internally with adaptation, including departmental coordination and institutional learning. This reflects a broader issue identified in climate adaptation literature, where this lack of reflective capacity is linked to the lack of the institutions mainstreaming capacities. Adaptation mainstreaming refers to the consideration of adaptation in all sector policy and practice so that it becomes routine or 'mainstream' to reduce climate risk and vulnerabilities (Wamsler, 2014; Wamsler and Pauleit, 2016). Related to the issue of mainstreaming adaptation, Runhaar et al. (2018) conclude that the main reasons for the adaptation implementation gap are *a lack of a sustained political commitment for adaptation mainstreaming from higher levels, and the lack of effective cooperation and coordination between key stakeholders* (p. 1209). Despite this gap, they discuss a project in which they show how mainstreaming can also result in successes, if there are pioneers within organizations who try to mainstream climate adaptation into existing policies.

In Norway, Kasa et al. (2018) examined the effects of a soft policy instrument by presenting local authorities with a *guideline* on Climate and Energy Planning. Despite Norway's position as a frontrunner in climate policy development, the guideline failed to significantly engage politicians and municipal officials or institutionalize local climate policy activities due to financial constraints and a shortage of appropriate manpower at the local level (Kasa et al., 2018). This example illustrates the need of considering contextual institutional factors for the reflective capacity. Moreover, Kristianssen & Granberg (2021) identified barriers around political will in Sweden to prioritize climate adaptation, as well as the scarcity of knowledge among municipal politicians about the importance of climate adaptation (p.14). This study will address two barriers: firstly, varying perspectives among municipal stakeholders regarding the necessary structures, strategies, and policies for advancing climate adaptation; and secondly, the challenge posed by the absence of suitable forums for learning. These barriers can hinder the reflectiveness of a municipality by potentially impeding their learning process, hindering knowledge integration, and diminishing preparedness for climate adaptation. Overcoming these barriers is essential for enhancing the municipality's adaptive capacity and its ability to respond effectively to climate-related challenges.

2.3.4. Availability of resources

Resources play a pivotal role in resilience initiatives such as climate adaptation (Datola, 2023). Resourcefulness is defined as the capacity to mobilize various assets and resources in order to take action (Spaans & Waterhout, 2017). This research will focus on the presence of financial and human resources which can support collaborative processes as they can enable implementation of adaptation measures and overcome resource-related constraints (Uittenbroek et al., 2012).

Financial and human resources

The above-mentioned *mainstreaming of climate adaptation* (2.3.3) encourages a more efficient and effective use of financial and human resources (Uittenbroek et al, 2013, p.400) as it makes room for subsidies or involvement of employees from other departments. Human resources may include new positions such as climate adaptation strategists (Kristianssen & Granberg, 2010) or area managers who can form a direct communicative bridge between citizens and municipalities (Gies, 2019).
Financial resources can include subsidies and financial incentives (Tyler and Moench, 2012). As previously mentioned, the lack of these resources may result in less motivation among actors (Kasa et al., 2018; Kristianssen & Granberg, 2021). In addition, it may result in larger barriers that hinder climate adaptation (Root et al., 2018), such as limited time for climate adaptation projects as costs can become high while the municipality wants to stay efficient. In a case study on climate adaptation in Rotterdam, they argued that using a governance approach helped bridge the lack of financial resources. This approach involved shifting stakeholder thinking, embracing new climate adaptation perspectives, and building consensus on the importance of climate adaptation (p.714). By incorporating the aspects of financial and human resources, this study looks to what extent the resource capacity is present within the climate adaptation strategy.

2.3.5. Collaborative Governance Capacities Wheel

Lastly, the paragraph below outlines a method for assessing the CG capacities discussed above. Gupta et al.'s (2010) adaptive capacity wheel provides a framework for assessing the adaptive capacity of governance systems in the context of climate change. Although she uses different dimensions *(diversity, learning, self-organization and social capital)*, each of these dimensions closely aligns with the chosen CG capacities. Inclusivity corresponds to diversity, as it emphasizes the importance of engaging diverse stakeholders and perspectives in decision-making processes. Integration connects to the concept of self-organization, as it involves coordinating various elements and actors within the governance system to achieve collective goals. Reflectiveness aligns with learning, as it involves the capacity to reflect on past experiences, learn from them, and adapt future strategies accordingly. Finally, resourcefulness corresponds to social capital, as it involves mobilizing and leveraging resources, networks, and relationships to address climate challenges through collaborations. Figure 4 shows the CG capacity wheel used for this research.

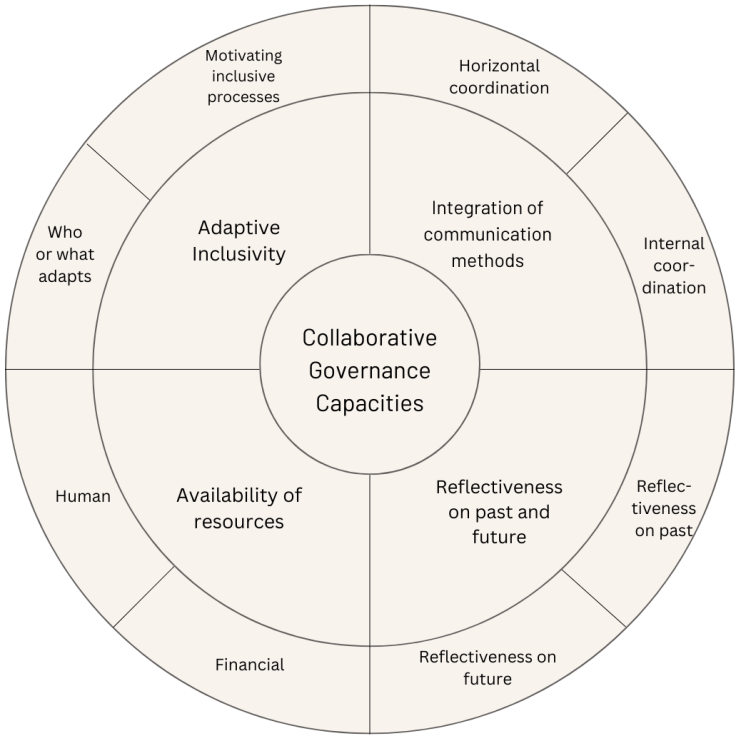

Figure 4: Collaborative Governance Capacity Wheel. Source: Adapted from Gupta (2010).

In summary, the collaborative governance (CG) capacities framework will be used as a structured approach to evaluating municipalities' capacities to collaborate for climate adaptation. Anchored in four key capacities of *adaptive inclusivity, integration of communication methods, reflectiveness on past projects, and the availability of resources,* the framework emphasizes the importance of collaborative efforts among diverse stakeholders and the utilization of various communication strategies, as well as learning from past experiences and the role of financial and human resources in overcoming resource-related constraints. Ultimately, through the CG capacity wheel, valuable insights can be gained into the presence or absence of the CG capacities and how they contribute to collaborations in practical projects.

Chapter 3

METHODOLOGY

Chapter 3: Methodology

This chapter describes the methodology adopted in this study beginning with research paradigm, design, and approach. Second, it describes the phases of data collection and analysis, and the ethical considerations of this research. This is done in line with quality principles, for example, ensuring trustworthiness of the findings.

3.1. Research paradigm, design, and approach

To understand the existence of collaborative governance (CG) capacities in the climate adaptation strategy, this research can be categorized as constructivist (Guba & Lincoln, 1994). As this research focuses on investigating the CG capacities in the climate adaptation strategy, it is assumed that subjective meaning needs to be constructed through the municipal officials and other stakeholders' lived experience within this paradigm. In addition, realities are diverse, subjective, and all equally legitimate (Ponterotto, 2005). No constructs are deemed inherently 'true' or 'false', but rather may vary in their level of insight (Guba & Lincoln, 1994). Consequently, constructivism emphasizes the importance of contextual understanding in which the knowledge is interpreted. As this research examines the CG capacities within two specific contexts in Amsterdam, it aims to recognize the different dynamics and characteristics of the city and tries to create a nuanced understanding of the capacities. This framework is applicable to the current research, wherein information is gathered based on the perspectives of interviewed stakeholders, collectively shaping their understanding of support.

Preliminary to the research design, desk research of peer reviewed scientific articles around governance capacities resulted in the framework of four identified capacities that are important for collaborative governance. Thereafter, a conceptual framework was created, explaining the underlying connections between the different concepts and theories in the literature section.

As a consequence, a qualitative descriptive research design is chosen considering its ability to gain a better understanding of a real-life phenomenon in depth and enables to gather rich data (Sandelowski, 2000). Often, this approach is limited in scope (e.g., sample size and interpretation) to allow a rich and clear description of a specific phenomenon or experience from the perspective of the target group (Magilvy & Thomas, 2009, p. 299). In addition, a qualitative approach can help in understanding the specific recurring themes or patterns of governance capacities (Aspers & Corte, 2019). In the context of this research, this design can provide a comprehensive overview of the collaborative governance (CG) capacities of the municipality in the context of the climate adaptation strategy.

Moreover, this research has a combination of a deductive and inductive approach. Grounded in the theories of collaborative governance (Ansell & Gash, 2008; Emerson et al., 2011; Emerson & Nabatchi, 2015; Newig et al. 2018) and governance capacities (Tanner et al., 2009; Ayda Eraydin, 2012; Coaffee, 2008; Tyler and Moench, 2012; Spaans & Waterhout, 2017; Leichecnko, 2010; Datola, 2023), the CG capacities are the starting point for analysing the existing capacities in the climate adaptation strategy. Additionally, an inductive approach is used to derive patterns and themes from the collected data, allowing for a detailed exploration of the capacities and how they shape the collaboration outcomes in the projects within the context of Amsterdam. Figure 5 provides an overview with examples of inductive and deductive coding.

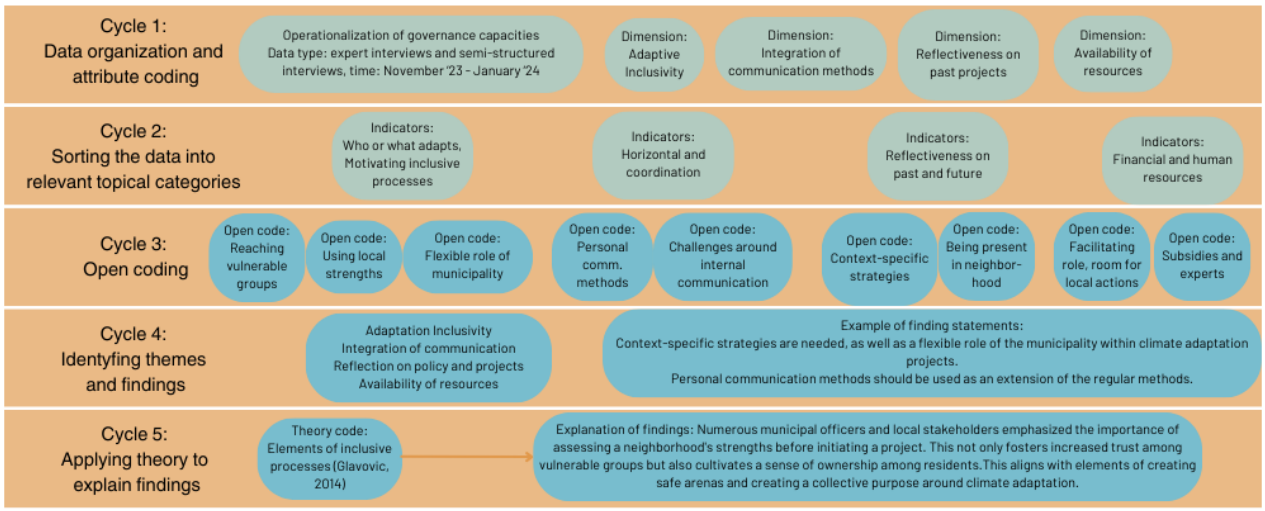

Figure 5: deductive and inductive analysis processes as adapted from Bingham & Witkowsy (2022) and Bingham (2023).

3.1.1. Sampling

This study used two different sampling methods: purposeful sampling and snowball sampling. Firstly, it used purposeful sampling to select municipal officials linked to the climate adaptation strategy (Palinkas et al., 2005). This sampling method covers the data collection of the policy part of the study. In this part, the sample size is purposively selected, comprising participants who have knowledge or experience around the investigated CG capacities and who are willing to share their narratives. As previously mentioned, a descriptive research design necessitates a sampling population with knowledge of the climate adaptation strategy and its collaboration processes. Two criteria were used to select municipal officials who could provide in-depth information around the CG capacities:

1) The sampling population was supposed to include municipal officials who are linked to the climate adaptation strategy. This means the respondents should have worked on the climate adaptation strategy, projects or are part of the program team Climate Adaptation.

2) The sampling population was supposed to include a diverse group of officers with different functions, such as communication, strategical and program advisors. This criterion was set because officials with different functions bring varied expertise and insights. As different roles contribute differently to the overall CG capacities understanding how these officials look from their own expertise and perspective provides a more comprehensive perspective on how CGC is shaped within the climate adaptation strategy.

Finally, this research used snowball sampling to recruit respondents related to the two climate adaptation projects that will be introduced in paragraph 3.6. Since these projects are conducted in neighborhoods with vulnerable groups, it was expected to encounter difficulties in reaching residents. It was assumed that challenges could arise from various social factors, including language barriers, or the lack of trust in authorities (Mees et al., 2017). These challenges could hinder communication and engagement efforts with the local community, as municipal officials mentioned that residents in disadvantaged neighborhoods often lacked sufficient knowledge of the Dutch language or were not in the right mental or physical state to be reached. Furthermore, asking for contact information from participants engaged in municipal projects is frequently hindered by privacy considerations. Thus, snowball sampling was used by asking one participant to introduce the researcher to additional respondents involved in the project. An overview of the semi-structured interviews is provided in Table 1.

Table 1: Overview of semi-structured interviews.

Interviewee	Date	Duration	Organization or project	Affiliation
Strategical Advisor	23-11-2023	00:48:27	Municipality of Amsterdam	Representative of the Program Team Climate Adaptation
Program Manager	29-11-2023	00:55:18	Municipality of Amsterdam	Representative of the Program Team Climate Adaptation
Communication Advisor 1	1-12-2023	00:46:02	Municipality of Amsterdam	Representative of the Program Team Climate Adaptation
Communication Advisor 2	19-12-2023	00:43:40	Municipality of Amsterdam	Representative of the Program Team Climate Adaptation
Community Manager	21-12-2023	00:56:36	Amsterdam Rainproof	Representative of Amsterdam Rainproof and Onze Straat
Projectmanager Green	10-01-2024	00:53:50	Municipality of Amsterdam	Representative of green projects within the municipality
Resident 1	23-01-2024	00:20:06	RESILIO Case Study, Indische Buurt	Resident
Resident 2	23-01-2024	00:18:09	RESILIO Case Study, Indische Buurt	Resident
Resident 3	05-02-2024	00:52:48	RESILIO Case Study, Indische Buurt	Resident
Resident 4	08-02-2024	00:34:09	RESILIO Case Study, Indische Buurt	Resident
Coordinator Buurthuis Archipel	23-01-2024	00:11:43	RESILIO Case Study, Indische Buurt	Resident

Area Manager	17-01-2024	00:38:20	Onze Straat Actie Case Study, Slotervaart	Representative of housing corporation Eigen Haard
Quartermaker	19-01-2024	00:32:07	Onze Straat Actie Case Study, Slotervaart	Representative of Buurthulp West
Resident 1	17-01-2024	00:07:03	Onze Straat Actie Case Study, Slotervaart	Resident
Resident 2	23-01-2024	00:05:28	Onze Straat Actie Case Study, Slotervaart	Resident
Member local organization/resident 3	17-01-2024	00:10:00 (estimate)	Onze Straat Actie Case Study, Slotervaart	Member local organization
Member local organization/resident 4	17-01-2024	00:10:00 (estimate)	Onze Straat Actie Case Study, Slotervaart	Member local organization

3.2. Research Trustworthiness

The research trustworthiness of this research is measured through Lincoln and Guba (1985)'s four elements of trustworthiness in qualitative research: credibility, transferability, dependability, and confirmability. These measures are utilised in the following paragraph to evaluate the quality of this research based on its research design.

First of all, *credibility* is referred to as the congruency of the research' findings with reality. To enhance the credibility of this research, data triangulation was used by collecting data through in-depth interviews and thorough document analysis of Amsterdam's climate adaptation strategy. Subsequently, regular checks on the research with two supervisors involved discussions on plans, procedures, and findings to further enhance credibility.

Secondly, *transferability* refers to the ability to generalise the findings of this research. Based on constructivism, the results rely on the information gathered from the stakeholders interviewed. Using the same methods does not guarantee identical outcomes as it depends on the contributions of the stakeholders and the interpretation of the researcher. However, the methods and topic list does provide a foundation for data collection and analysis. Thus, while qualitative research may not fully aim for transferability, the comprehensive approach used to investigate CG capacities in climate adaptation may be applicable to other climate adaptation projects in Amsterdam and in other comparable cities.

Furthermore, *dependability* is ensured through the transparent documentation of the research process. A detailed research process, including data collection and analysis, was maintained. A weekly log in Atlas.ti documented every decision, change, and progress in the process. Regarding the theoretical part, the researcher made choices to frame the concept of collaborative governance capacities. The exclusion of other governance capacities is justified based on time constraints, a strategic focus on capacities directly linked to collaboration and governance, consistent highlighting of

these four chosen capacities in the literature, and the aim for an in-depth analysis of empirical data.

Confirmability, the last perspective of trustworthiness, refers to the objectivity and neutrality of the research findings. While achieving complete objectivity is challenging as qualitative research is often based on the subjective perspectives of the interviewed stakeholders, this research used intersubjectivity (Chereni et al., 2020) to enhance the confirmability. This involved comparing the responses from different stakeholders (municipal officials as well as local organizations and residents) on the same themes together with my own interpretation. Additionally, the use of the professional transcription service Atlas.Ti also played a role in establishing a neutral coding scheme. Handwritten coding was avoided to impede potential biases or assumptions in the coding process.

3.3. Data collection

3.3.1. Documentary sources

Initially, a preliminary search on the website of the municipality of Amsterdam was conducted to find policy documents related to climate adaptation. This led the researcher to two key documents: the Climate Adaptation Strategy Amsterdam (*Strategie Klimaatadaptatie Amsterdam*) and the Implementation Agenda (*Uitvoeringsagenda 2021*), in which the associated implementations in the city are highlighted. These documents were consulted to establish a foundation of knowledge on the climate adaptation strategy through the lens of the CG capacities. These documents provided information on the collaborations efforts of the municipality and the implementation of their climate adaptation policy.

Regarding the two climate adaptation projects, related documents were gathered after discussions with municipal officials who mentioned several potentially fitting projects. For the RESILIO project, the final report was sent to the researcher by the RESILIO project team. For the Onze Straat project, a presentation with information about the project was sent by the community manager of Amsterdam Rainproof, and information was found through the websites of Amsterdam Rainproof. The consulted documents for this research are mentioned in Table 2.

Table 2: Overview of consulted documents.

Consulted Document	Author, year published
The Climate Adaptation Strategy *("Klimaatadaptatie Strategie Amsterdam")*	(Municipality of Amsterdam, 2020)
Implementation Agenda 2021 *("Uitvoeringsagenda 2021")*	(Municipality of Amsterdam, 2021)
The Resilio Blue-Green project website (https://resilio.amsterdam)	(RESILIO, 2020)
RESILIO Final Report *("Eindrapport RESILIO")*	(Holstein et al., 2022)
Event: Onze Straat Actie – website Amsterdam Weerproof (https://weerproof.nl/agenda/event-onze-straat-actie-in-nieuw-west/)	(Amsterdam Weerproof, 2023)
Onze Straat Overview Presentation *("Overzicht geleerde lessen Onze Straat projecten")*	(Amsterdam Weerproof, 2023)

3.3.2. Semi-structured interviews

As relevant experiences and views around the CG capacities could not be sufficiently obtained from the documents, these were collected through semi-structured interviews with stakeholders involved in the climate adaptation strategy. This included municipal officials from the program team Climate Adaptation and local organizations and residents from the climate adaptation projects. Semi-structured interviews facilitate the gathering of information through predetermined themes, while also offering flexibility for participants to introduce new topics (Becker et al, 2012). Aside from questions about the process of CG capacities itself, it invites participants to share their perceptions and experiences regarding collaboration processes as well.

The municipal officials provided in-depth insights into the identification of CG capacities in policy that extends beyond the scope of the climate adaptation policy document, while the local organizations and residents provided firsthand experiences on how the CG capacities are applied in real-life projects and how they assumingly result in different collaboration outcomes. Together, the semi-structured interviews derived from both the policy as well as the practical side of the climate adaptation strategy contributes to the overall analysis of the CG capacities and their collaboration dynamics.

The theoretical framework informed the operationalisation of the concepts and consequently provided the foundation for formulating interview questions (see appendix A). In addition, based on the document analysis, the topic list for the semi-structured interviews with municipal officials was modified to include findings that appeared relevant for further exploration. The interview guide was modified according to the interviewee, as not every topic was relevant for every stakeholder due to

differences in their level of involvement and role within the climate adaptation strategy. For the municipal officials, the questions focused more on their experiences regarding policy implementation and evaluation, whereas those for local organizations and residents were centered around their experiences with collaboration with the municipality in climate adaptation projects.

Lastly, the coding of results was executed in ATLAS.TI, of which the coding tree can be found in appendix B. The coding method was both deductive, as the codes were theoretically informed, as well as inductive, as the codes are mostly derived from the input given. This resulted in themes that have been used in the data analysis part.

3.3.3. Ethics

Ethical considerations, by convention, should be considered when conducting semi-structured interviews (Bryman, 2016). It is important that interviewees are treated with respect and that their informed consent is obtained. Within this research, interviewees were asked to provide consent for the utilization of their interview data in this thesis and for the recording of the interviews.

Attention was given during the design phase and throughout the fieldwork process to ensuring the privacy of the interviewees. For instance, measures were implemented to safeguard the confidentiality of participants and minimize any potential negative consequences. Specifically, informed consent procedures were followed, wherein participants were briefed on the confidentiality measures in place and provided consent for their participation. Moreover, steps were taken to secure the storage and handling of interview data to prevent unauthorized access. As the Climate Adaptation Strategy and its associated projects are ongoing processes expected to extend for years after this thesis is finished, preserving the privacy of interviewees becomes crucial to avoid any potential negative effects on their involvement in the collaborative processes discussed in this research. Consequently, recordings and transcripts of the interviews will not be shared by the researcher to maintain confidentiality. Specific details such as names, age, gender, and precise addresses of the interviewees will not be revealed. The interviews with municipal officials, local organizations, and residents did give consent to be referred to as 'function X, municipality', 'local organization Y employee', or 'resident'.

3.4. Data analysis methods

To answer the research sub-questions the data collected through the semi-structured interviews was transcribed and coded in Atlas ti with reference to the theoretical framework.

3.4.1. Document analysis

First, a document analysis of the Climate Adaptation Strategy was done. The analysis was structured around the four capacities identified as crucial in the literature for collaborative governance and resulted in a comprehensive understanding of the context in which the collaborative governance capacities exist. In addition, this analysis also sharpened the topic list for semi-structured interviews with municipal officials as important findings were included into the topic list that appeared relevant for further exploration.

3.4.2. Thematic content analysis

Furthermore, thematic content analysis was applied to structure the input from the semi-structured interviews. This analysis aimed to recognize, structure, and highlight patterns and themes related to collaborative governance and the capacities (Julistiono et al., 2023). Subsequently, this research drew upon the theoretical framework as a foundation for the codes for the thematic analysis of the results. The coded results were analysed through Atlas.ti and provided the base for the sub-questions. This involved assigning codes to text segments representing ideas, concepts, or themes around the four CG capacities and collaborations within the Climate Adaptation Strategy. Using Atlas.ti facilitated systematic organization and interpretation of this data.

3.4.3. Collaborative Governance Capacities Wheel

As previously mentioned in the theoretical chapter, Gupta et al.'s (2010) adaptive capacity wheel was used for assessing the adaptive capacity of governance systems in the context of climate change, with very much comparable concepts from Datola (2023). This makes the wheel suitable for assessing the presence or absence of the CG capacities within the context of Amsterdam's climate adaptation strategy. Thus, it was adapted into the collaborative governance capacities wheel. The following section explains how each variable was scored within the dimensions of *adaptive inclusivity, integration of communication methods, reflectiveness of past policy and actions* and *availability of resources*.

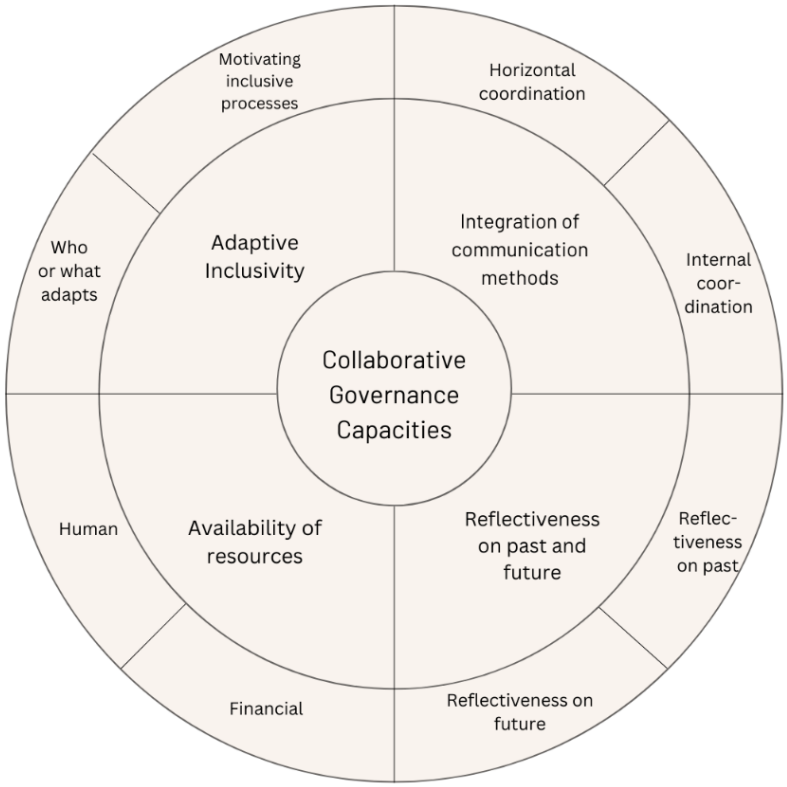

Figure 7: Collaborative Governance Capacity Wheel. Source: Adapted from Gupta et al., (2010)
The scores of the wheel were interpreted as follows:

- *High Presence (+2):* Indicates a strong, well-integrated presence of the specific capacity within the strategy, suggesting effective implementation and consideration of the capacity in question.
- *Slightly High Presence (+1):* Shows a notable but not fully optimized presence of the capacity, indicating areas of strength with room for improvement.
- *Moderate Presence (0):* Reflects a balanced or neutral implementation of the capacity, suggesting neither significant strengths nor weaknesses. The score 0 will also be used if there is too little evidence to score the indicator.
- *Slightly Low Presence (-1):* Points to a presence that is somewhat lacking, indicating areas that require attention and improvement.
- *Low Presence (-2):* Shows a significant absence or weakness of the capacity within the strategy, highlighting critical areas for development.

During the scoring, the researcher chose to use a similar scale to the one that is provided by Gupta et al. (2010), by using a scale from high presence to low presence. The section below explains how the scores are assigned per dimension.

Table 3: Scoring criteria for the CGC wheel.

Presence of CGC in the municipality of Amsterdam's Climate Adaptation Strategy	Score	Aggregated scores for dimensions and collaborative governance capacities
High presence	+2	+1.01 to + 2.00
Slightly high presence	+1	+0.01 to + 1.00
Moderate presence	0	0
Slightly low presence	-1	-0.01 to 1.00
Low presence	-2	-1.01 to -2.00

Scoring the capacities

Adaptive Inclusivity

First, the indicator of who or what adapts is scored by evaluating mentions of vulnerable groups included in the strategy and projects. High scores are assigned if there is explicit consideration of the needs and challenges of vulnerable groups such as elderly, low-income communities or people with disabilities, and if there are strategies or initiatives aimed at addressing their specific concerns. For example, if the strategy outlines measures to ensure accessibility for people with disabilities in climate adaptation projects, this would demonstrate explicit consideration.

Second, the indicator motivating inclusive processes is scored by assessing the approaches in the strategy and projects that engage a wide range of individuals in the decision-making processes related to climate adaptation. This may involve personalized outreach efforts or using participatory methods that highlight diverse perspectives. High scores in this section indicate concrete steps taken by the municipality to foster inclusivity and ensure that the decision-making process reflects the diversity of stakeholders affected by climate adaptation initiatives.

Integration of communication methods

For the integration of communication methods, the horizontal coordination indicator is assessed by evaluating the mentions of communication strategies with external networks in the strategy and semi-structured interviews. High scores are assigned when there were specific examples that demonstrated how communication could result in better collaborations, such as personalized communication methods and regular exchanges of information were used with external stakeholders. Regarding the indicator internal coordination within the organization, it is evaluated by effective communication methods internally. These might include regular meetings, working groups or communication platforms which are aimed at fostering collaboration and information sharing among different departments or teams around climate adaptation.

Reflectiveness of past and future

In terms of reflecting on past policies and projects, high scores are assigned when the strategy includes mentions of how past experiences are thoroughly reflected upon.

Meaning that experiences should demonstrate an in-depth assessment of past initiatives, including an evaluation of their success, failures and lessons learned. This indicates a commitment to learning from past projects and adapting strategies accordingly. Furthermore, high scores are also given when it is explicitly acknowledged that insights gained from past experiences will be proactively incorporated into future decision-making and climate adaptation projects. Here, concrete measures or progress in future projects need to be mentioned.

Availability of resources

For financial resources, high scores are assigned when there is evidence of the availability and dedicated mentions of financial resources for climate adaptation efforts. Lastly, for human resources, evaluations are made regarding the expertise and knowledge available in terms of climate adaptation, community collaborations, and technical solutions. Meaning that high scores are assigned when there is staff that has expertise in climate adaptation related themes or personnel who are dedicated to fostering community collaborations and stakeholder engagement, such as area managers.

3.5. Structure of methodology

To end this chapter, figure 6 provides an overview of the phases and used methods to answer the sub-questions.

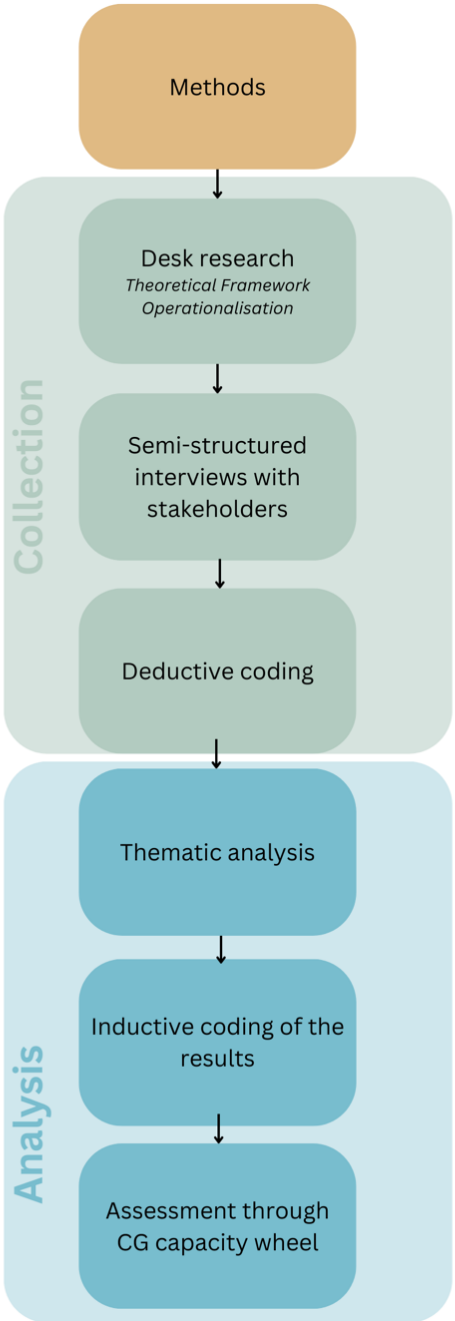

Figure 6: Methodology of research.

3.6. Background to the study area

As previously mentioned, both projects are linked to the Amsterdam Rainproof network and were mentioned during the interviews with municipal officials. This paragraph gives a brief overview of the projects.

3.6.1. Onze Straat: Greening the front- and backyards of vulnerable residents

The 'Onze Straat' projects focus on greening the front and backyards of vulnerable residents in Amsterdam. A deliberate decision was made to specifically involve vulnerable residents in the project. This decision was motivated by two primary considerations. Firstly, many of these residents faced challenges in maintaining their gardens due to both physical and mental limitations. Often, the garden served as storage space for belongings or became overgrown with weeds, indicating the difficulty these residents encountered in maintaining them. Secondly, these rental dwellings are managed by the housing corporation Eigen Haard, which facilitated organizational management and enabled close communication with residents. The housing corporation's profound understanding of renters and strong connections with them further facilitated this collaboration.

This study focuses on the Onze Straat greening project in the neighborhood of Slotervaart. Slotervaart is situated in the western part of Amsterdam, and has a diverse population with various cultural backgrounds, contributing to a rich tapestry of ethnicities and traditions. Notably, 52% of residents have a non-Western migration background (Gemeente Amsterdam, 2022). Supported by the municipality, this project targets individuals facing challenges in maintaining their gardens due to physical limitations or social isolation. In collaboration with Buurthulp, Woningcorporatie Eigen Haard, Amsterdam Rainproof, De Groene Druppel, and a volunteer organization, the initiative aims to not only enhance green spaces but also raise awareness among residents about the importance of greening their surroundings.

Figure 9 and 10: Completed greening of the front yards of social housing in Slotervaart. Source: own pictures.

3.6.2. RESILIO Blue-Green roof project in the Indische Buurt

To address the challenge of frequent extreme rainfall and longer periods of drought, unused rooftop spaces have been creatively repurposed as innovative solutions were needed to manage water and to preserve urban coolness. Through the RESILIO project, 12,683 square meters of rooftop space have been transformed into smart blue-green roofs. These interventions have been implemented on residential complexes in four Amsterdam neighborhoods. Smart blue-green roofs serve dual purposes, providing water retention capabilities while creating habitat for new greenery, thereby enhancing the city's resilience and biodiversity (RESILIO, n.d.). The project is a collaboration between, among others, the municipality of Amsterdam, knowledge institutes and housing corporations. The Blue-Green roof selected for this research is located on a building at the Makassarplein in the Indische Buurt.

The *Indische Buurt*, located in the eastern part of Amsterdam, is known for its mix of historical architecture and multicultural population (Gemeente Amsterdam, n.d). The neighbourhood faces social challenges concerning the implementation of climate adaptation projects including issues of social isolation, language barriers, and lower participation rates, particularly among renters lacking proficiency in Dutch. The residents, mainly older individuals with a non-Western ethnic background, may feel unsafe due to limited social interaction and linguistic difficulties (Gemeente Amsterdam, n.d; Holstein et al., 2022). Addressing these social challenges is seen as crucial for effective climate adaptation initiatives, as the success of projects like RESILIO depends on inclusive community engagement and awareness (Holstein et al., 2022). By leveraging citizen engagement and participation, RESILIO aims to create a more climate-resilient *Indische Buurt* while promoting inclusivity and community-driven solutions.

Figure 11 and 12: Pictures from the RESILIO-project in the Makassarstraat. Source: Resilio Final Report, 2022.

The RESILIO project's final report (Holstein et al.,2022) offers crucial insights into the challenges faced during the implementation of climate adaptation initiatives in the Indische Buurt. Residents in the area commonly perceived the local heat conditions as oppressive, emphasizing the urgency for climate adaptation measures. The municipality's commitment to make the area climate resilient is reflected in their priority for greenery, which is also reflected in their policy document *Green Agenda 2015-2022*. In the report, survey results indicate that residents are more concerned about heat stress than water stress, emphasizing the importance of greening and better home insulation. However, it highlights challenges related to social interaction, particularly among tenants, owing to language barriers. The findings underscore the need for enhanced inclusivity strategies and improved community engagement efforts to ensure effective participation.

Overall, the report acknowledges the considerable time and effort required to make residents receptive to climate adaptation challenges, emphasizing the overarching challenge of engaging residents in the project, primarily due to their limited influence on the construction of the BG roof itself (p.72) and the language barrier and lack of knowledge around climate adaptation. While the project has put concise effort to facilitate participation processes, such as setting up information meetings as well as joining local events to engage a wider group of residents, the general turnout was low.

To summarize, both case studies highlight the crucial role of collaborations between diverse stakeholders as a facilitator of the implementation of climate adaptation measures.

3.7. Justification for selected Climate Adaptation Projects

The following two projects were selected in this study: the 'Onze Straat' greening action in Slotervaart and the RESILIO blue-green roof project in the Indische Buurt. The criteria for project selection were as follows: 1) The projects should be mentioned in the climate adaptation strategy; 2) The projects should involve collaboration between the municipality and other stakeholders; 3) The projects should be identified as lead projects by the program team climate adaptation, considering the time constraint of only six months for this research. An explanation for the selection of the two climate adaptation projects is provided below.

Firstly, numerous climate adaptation projects were mentioned by interviewed municipal officials. The 'Onze Straat' greening action was particularly highlighted as successful by several officials. On one hand, this project is chosen due to the useful and in-depth insights provided by officials regarding this specific project. On the other hand, as this research is conducted within a limited time frame of 6 months, it was beneficial for the researcher to follow the suggestions and leads of municipal officials for climate adaptation projects where the CG capacities are perceived as successfully

implemented. Secondly, the RESILIO blue-green roof project was selected as it was mentioned twice by interviewees. Although less frequently mentioned, it met the criteria mentioned above. The researcher chose to incorporate another climate adaptation project to ensure the diversity of this study. Only using a project perceived as most successful by municipal officials could introduce bias, as it might be seen as a 'show pony' of the municipality. Both projects are implemented in neighborhoods with different compositions and through different collaborations with stakeholders. It was assumed beforehand that these contextual differences would result in two distinct implementations of CG capacities in practice.

For the 'Onze Straat' Action, data collection commenced at the local organization 'De Ark,' an active and community-driven church in the neighborhood. 'De Ark' was expected to have close contacts with residents in the neighborhood. The same applied to the area manager of housing corporation Eigen Haard, whose office is located next to the church. These visits led to further contacts and engagement with local stakeholders in the Slotervaart neighborhood, utilizing a snowball sampling approach to expand the network of participants. Additionally, flyers about this research were distributed in the mailboxes of residents to reach more respondents. A total of 17 residents joined in greening their garden in the Onze Straat project. Due to privacy reasons, no information was given about the background of the residents.

For the RESILIO project, the data collection process began by reaching out to residents living in the building where the Blue-Green Roof has been established. Knowing these residents beforehand had both advantages and potential drawbacks. First, having a trusted relationship with these residents may have made them more willing to participate and share their perspectives openly, especially since the target group is vulnerable. However, knowing residents beforehand might have introduced bias and could have hindered the generalizability of the findings, as the researcher solely used this one resident's network in the neighborhood as a starting point for snowball sampling. Thus, snowball sampling was employed to expand connections and engage with additional residents and stakeholders in the Indische Buurt. In addition, flyers about this research were placed in the mailboxes of residents, and a visit to the Buurthuis Archipel, the community center of the neighborhood, was conducted. For the RESILIO project, it was not clear from the report how many residents participated in the project.

Chapter 4

ANALYSIS OF THE CLIMATE ADAPTATION STRATEGY

Chapter 4: Analysis of the Climate Adaptation Strategy

Through the four CG capacities that have been derived from theory, this chapter analyses the strategy to create a first attempt of knowledge around the CG capacities in the strategy.

4.1. Climate Adaptation Strategy

Amsterdam's climate adaptation strategy focuses on addressing the challenges posed by climate change and preparing the city to mitigate its consequences. The strategy, as outlined by the Municipality of Amsterdam, emphasizes the need to tackle extreme weather events such as heatwaves, droughts, flood events and associated risks of inundation (Municipality of Amsterdam, 2020a). Central to the policy framework is the recognition that collaborative efforts are essential to effectively address climate change impacts.

4.1.1 Collaboration approaches

As stated in their climate adaptation policy, the municipality sees climate adaptation as the shared responsibility of diverse stakeholders in the city, such as private businesses, civil society, organisations and residents for taking preparatory measures to make the city as climate-proof as possible (Municipality of Amsterdam, 2020, p.9). The program climate adaptation consists of four pillars, namely the *Execute, Activate, Research,* and *Integrate* pillars. For this study, the Activate pillar is most important as the municipality uses a network-based strategy through their network Amsterdam Rainproof to collaborate with and activate external stakeholders in the city.

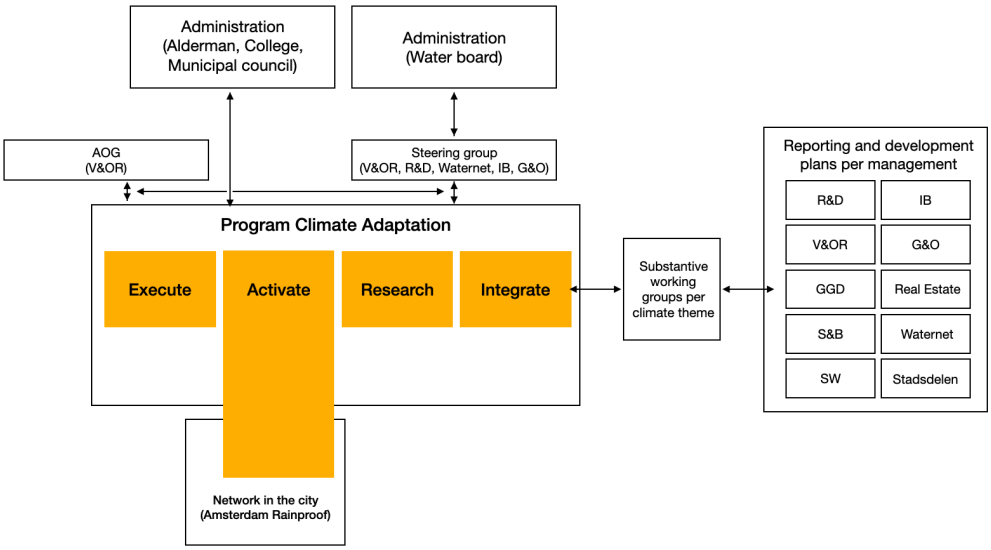

Figure 8: Structure of the municipality with an emphasis on Climate Adaptation adopted from an internal municipality presentation. Source: Author.

Amsterdam Rainproof is networking organisation on behalf of the municipality of Amsterdam and Waternet, the water supplier of Amsterdam and surrounding area. The organisation works with partners in the city and connects stakeholders with the municipality and Waternet. Within this network, ideas, initiatives, and information to prepare the city for extreme rainfall are shared. This approach aims to encourage collective action towards excessive rainfall and flooding by connecting and activating all partners involved (p.13). The municipality and Waternet have successfully built a network around this theme, and in February 2024, Amsterdam Rainproof has expanded its approach to Amsterdam Weatherproof by including three more themes: heat, drought and flood risk (Gemeente Amsterdam, 2022). As argued on the website of Amsterdam Weatherproof, the network's involvement ensures a comprehensive and inclusive approach, aligning with the overarching strategy of the municipality to address climate challenges collectively (Amsterdam Weatherproof, n.d.). The website puts more emphasis on actions that residents and professionals can take around climate adaptation. These are the concrete ambitions of Weatherproof (Weatherproof, 2024):

1. We create awareness and offer action perspectives to residents and professionals, for instance through the Amsterdam Weatherproof website and social media channels.
2. We build a partner network and facilitate knowledge sharing from knowledge institutes and residents' initiatives within this network.
3. We initiate and stimulate green actions. Think of the NK Tegelwippen, Onze Straat actions and the Wijkaanpak in Noord and Zuidoost.
4. We help make climate adaptation the norm within organisations and make the connection with our own organisations the municipality of Amsterdam and Waternet. This is called structural integration.

This expansion signifies a strategic effort across various climate adaptation initiatives as it is a deliberate and planned action aimed at expanding collaboration among stakeholders involved in various projects and activities related to climate adaptation. Both chosen climate adaptation projects are connected to this network. Within this study, the network will still be mentioned as Amsterdam Rainproof as the transition to Weatherproof is made very late in the research period.

The importance of the Amsterdam Rainproof network becomes apparent when considering that climate adaptation impacts various aspects such as housing, green spaces, public areas, water management, and health. Furthermore, effective adaptation efforts require flexibility and collaboration across different sectors and stakeholders:

"The approach and organisation of climate adaptation is therefore all about flexibility and cooperation. We want to use the Implementation Agenda to give an incentive to projects and activities. The ultimate goal is to make climate adaptation 'the new normal'" (Municipality of Amsterdam, 2021a, p.3).

More importantly, one of the reasons why the municipality sees climate adaptation as a shared responsibility is because of the division of ownership of Amsterdam's land. Although the municipality owns half of the land, the other half is privately owned land, owned by private businesses, housing corporations and residents of Amsterdam. As the municipality cannot execute their climate adaptation measures on privately owned land, the need for collaboration with these private stakeholders is evident. In addition, one of the objectives within the strategy is integrating climate adaptation as standard in projects across both public and private domains. This objective recognizes that climate adaptation requires coordinated efforts across public and private stakeholders, thus making it a task for both:

"About half of the city's territory consists of private land. This makes climate adaptation both a public and private task" (Municipality of Amsterdam, 2020a, p. 10).

The shared responsibility is also shown as the municipality has established regulations that lay out their responsibilities for climate adaptation up to a specific threshold. For instance, their implementation agenda, in which they highlight the practical implementations of their climate adaptation policy, indicates that concerning rainfall, the municipality is capable and committed to managing water retention up to 7 meters. However, for rainfall exceeding this threshold, the responsibility shifts to residents and businesses.

4.1.2. Adaptive Inclusivity

The analysed policy documents emphasise engaging residents in the process of adapting their environment to address climate-related challenges. However, there is no explicit mention regarding the inclusion or support of vulnerable groups. Additionally, the policy does not clearly outline who should be involved in the decision-making process for climate adaptation beyond the general category of residents. While occasional examples of local initiatives are provided, there is a notable absence of comprehensive strategies for effectively involving the most vulnerable groups in climate adaptation efforts.

One of these initiatives is the Onze Straat greening project, a project organized by Amsterdam Rainproof together with housing corporations, volunteering organizations and garden centres. Residents are supported in removing tiles from their garden to reduce flooding during heavy rainfall and make more room for flora and fauna (Municipality of Amsterdam, 2020a, p.17). The municipality viewed these initiatives not

only as successful demonstrations of collaboration but also as catalysts for strengthening community networks within the neighbourhood. The climate adaptation strategy shows that these collaborative efforts not only create a sense of shared responsibility but also underscore the municipality's dedication to partnering with the community to tackle local climate challenges. In addition to collaborative initiatives like the Onze Straat project, the municipality attempts to contribute to local sustainability efforts through projects such as greening public areas and providing subsidies to local organizations for green roofs and facades.

Inclusive adaptation strongly depends on the role local authorities take within climate adaptation (Brink & Wamsler, 2017) and new, networking and stimulating and facilitating roles are becoming more popular (Mees et al., 2017). These roles are also apparent in the climate adaptation strategy of Amsterdam as the municipality not only highlights their inspiring and agenda-setting role, but also the need to *collaborate* with partners in the city through Amsterdam Rainproof, *stimulate* greening through more subsidies and facilitate initiatives through for instance tile services (Municipality of Amsterdam, 2021a).

4.1.3 Integration of communication methods

Knowledge sharing and communication play an important role in climate adaptation, as information needs to be exchanged across different scales, departments, and systems (Spanjaard & Water, 2017). In the policy document, the focus is put on communication with the external stakeholders (horizontal coordination). The climate adaptation strategy highlights two communication approaches.

The first approach is the personal approach. According to their strategy, communication around climate adaptation should aim to resonate with the target audience and align with their daily experiences. An example cited is the "*Koele plekken checker*," which helps residents locate areas for cooling during hot weather. The second approach is action oriented. Meaning with their communication, the municipality aims at providing practical examples and actionable tips that encourages awareness and inspires individuals to take proactive steps. For instance, sharing local success stories on social media platforms serves as a motivating factor for community engagement.

Furthermore, the strategy highlights that several discussions and research have tailored the communication approach to address the specific concerns and interests of diverse target groups. They mention for instance how they utilized customized messaging, visual aids, and a diverse range of communication channels to effectively engage with different segments of the population. However, no examples are mentioned.

Overall, the document emphasizes ongoing dialogue with the city's residents and other stakeholders, with communication efforts evolving over time to ensure continued engagement and participation in climate adaptation initiatives.

4.1.4. Reflectiveness on past projects

Regarding the reflective capacity, the strategy emphasizes the importance of regular updates regarding their projects. This includes assessing implemented projects and their effects, with a readiness to adapt or refine planning and approaches as needed. This is mentioned as an iterative process in the climate adaptations strategy and underscores the strategy's commitment to ongoing learning and adaptation.

"Our goal is to be as prepared as possible for the changing climate by 2050. In doing so, we take an iterative approach so that we can incorporate new information about the changing climate and thus know what to expect and how to respond" (Municipality of Amsterdam, 2020a, p.5).

In addition, the Implementation Agenda, which sets out the practical actions and implementations of the climate adaptation policy, is viewed as part of an iterative process aimed at acquiring more knowledge annually, understanding what is necessary, what works or doesn't work, and translating this understanding into visible and effective policies and measures.

Finally, the strategy highlights the implementation of experiments in public spaces, which are linked to monitoring and evaluation strategies. In this way, successful experiments can be scaled up and applied in other areas of the city. This approach demonstrates a proactive stance towards learning from practical experiences and applying successful interventions more broadly. However, no specific mentions around the reflectiveness on past projects have been made. It is assumed that this is the case because the strategy is still in between its policy implementation and evaluation phase.

4.1.5. Availability of resources

Lastly, looking at the resource capacity, the strategy highlights that the costs associated with climate adaptation are expected to increase in the coming years. There will be higher costs in both the physical domain (such as construction, management, and maintenance) and the social domain. It is anticipated that these costs will also have financial implications for residents, businesses, and other stakeholders. However, the strategy reveals that in many urban development projects, climate adaptation measures are already incorporated, and the associated costs are included in the project budgets (Municipality of Amsterdam, 2021a, p.54). Additionally, a part of the annual maintenance budget for public spaces and greenery is allocated to test and implement innovative solutions to enhance the city's resilience to climate change.

In addition, funding for climate adaptation projects comes from various sources, including specific budgets allocated for climate adaptation purposes, municipal subsidy programs focused on green initiatives and sustainable building practices, as well as funding from national, provincial, and water management authorities earmarked for climate adaptation efforts. Furthermore, efforts to secure co-financing from municipal programs or third parties are ongoing, presenting opportunities for innovative collaborations. This also highlights the need for collaborations and partnerships with external stakeholders.

Overall, while there are significant financial challenges associated with climate adaptation, the strategy emphasizes a multifaceted approach to funding, drawing from diverse sources and leveraging partnerships to advance climate resilience efforts throughout the city.

Chapter 5

RESULTS

Chapter 5: Collaborative governance capacities in the two climate adaptation projects

This chapter analyses the collaborative governance (CG) capacities as stated in the climate adaptation strategy. Subsequently, it identifies how these capacities contribute or obstruct the collaborations in the two selected climate adaptation projects in the city: Onze Straat greening project in Slotervaart and RESILIO blue-green roofs in the Indische Buurt. Based on the analysis, five themes have been formulated. These themes show that the implementation of the capacities in practice results in a more complex relationship among them.

5.1. Navigating financial and time constraints in municipal climate adaptation

As previously mentioned, half of Amsterdam's area consists of privately owned land. As a result, the municipality sees climate adaptation as both a public and private task (Gemeente Amsterdam, 2020). This is substantiated by several municipal officials, who mentioned the shared responsibility with residents, local organisations, and professionals. Both the policy document and interviews show that the shared responsibility is not only mentioned to create awareness or a feeling that stakeholders should participate in the collective goal. It is perceived by all municipal officials to be crucial in making the city of Amsterdam climate adaptive. This responsibility is two-fold.

On one hand, the municipality is owner of the public space. Efforts to establish a climate-positive public space are typically integrated into existing developments, with the municipality rarely implementing standalone climate adaptation measures. Usually, they try to incorporate climate adaptation with already planned redevelopment of the streets. Herewith, climate adaptation is done by different departments, such as the department of traffic and public space, as they use their budget for redeveloping the street.

> "So, we always hitch a ride on planned work. And that way, you basically get through every street within 25 years [when it is due for replacement]. The moment the street is broken up, is the moment when we also start thinking how we are going to design the new situation. At places where you really have to do something because it goes wrong [e.g., floods or heat issues], we could say that we are going to invest extra money. But that rarely happens. And when it happens, the investment is not done by the Program Climate Adaptation, but ultimately by the department under which the developments fall" (Strategical Advisor, Municipality of Amsterdam).

This so-called 'budgetary management cycle' ensures that developments do not drive-up costs too high. In the strategy, these internal financial challenges are not

mentioned. The budgetary cycle shows difficulties in implementing climate adaptation due to the vast and institutionalized process of the municipality. To elaborate on this, several interviewed officials mentioned how the municipality has tight timelines for projects due to concerns about high costs associated with extending projects. More specifically, one interviewed official mentioned how the preparation phase of a project is usually seven or eight months, while the active redevelopment part takes three to four weeks. For instance, as a project only has limited budget, the long preparation of a project creates limited opportunity in the short active redevelopment part to engage citizens when a street is being greened. Unfortunately, participation is not high on their priority list due to the limited time they get for a development project:

"Involving residents requires that you then actually look a bit deeper. You don't get there with just a resident letter, you have to put more effort. But then you need to ask yourself, how important is this? Or well, you need to make a trade-off. Because then you have to start making more time available to make sure you have the sound of those people too" (Area Manager greening projects, Municipality of Amsterdam).

On the other hand, the challenges above emphasize the need for closer collaborations with stakeholders in the city. This perceived importance of collaboration by municipal officials, combined with the findings around CG capacities in the document analysis, demonstrates a commitment that goes beyond displays of wanting to engage residents. Shared responsibility is seen by municipal officials from two perspectives First, they indicated that residents may often contribute to the problem of climate change if they fill up their yards with tiles and asphalt. Secondly, since the municipality can only do so much in public space to make it cooler or absorb rainfall, it means that residents may have to make certain interventions:

"That [red. the shared responsibility] shares itself towards the residents as the municipality cannot operate on private ground. We have stated for ourselves that we must be able to absorb rainfall of 70 millimeters in the public space after we have redeveloped the street. Here, the municipality says, we are responsible for that. But if anything more than the 70 mm falls, we are not responsible anymore. And this is where the residents' responsibility comes" (Strategical Advisor, Municipality of Amsterdam).

One interviewed municipal official refers to this as the dilemma between the 'wish list' of the municipality and the 'capacity and available resources,' emphasizing the ongoing need for improved and reasonable allocation of resources across the four pillars of the climate adaptation strategy. Subsequentially, several interviewees mentioned the contrary stakes of municipality and residents. The end-decision of a project is always made by higher authorities through an administrative and political choice, which entails considerations in terms of feasibility and resource allocation, as well as political priorities and broader objectives. This makes it hard for officials to include all

residents' opinions and needs, as challenges such as limited financial resources, lack of time constraints, resistance and political considerations hinder this process.

For instance, as a consequence of temporal and financial constraints, internal greening projects are often implemented by providing a framework within which residents can react to the plans of the project. This framework reduces citizens' involvement in projects as there is less room for them to participate in the project. However, giving this delineation is also needed as there is a complexity of rules around the layout of the Amsterdam streetscape. Often residents want a certain green object in the streetscape, but rules like 'Puccini', which are conditions for greening the Amsterdam's streetscape, hinder their participation in the process. It is therefore important to provide frameworks within which residents can move, to avoid disappointment if the plan eventually changes. The Area Manager had this to say:

"After all, we must also test the design of the public space internally by expert colleagues. If residents say, 'I want this tree in the public space', we'll probably have to come back and say no, that's not possible because of the rules. Often this comes up the moment we have realised the design. The management is then taken over by another department, for instance *Stadswerken*. They have to be able to work with that [the chosen tree]. If we hand over something they can't really work with at all, they will change it" (Area Manager greening projects, Municipality of Amsterdam).

In response to the challenge of aligning with residents' needs, officials emphasized the need for shorter communication lines between the municipality and residents. Despite the organizational challenges faced in achieving this, it is considered crucial by many. One official highlighted that area managers serve as the closest link to residents, although they often lack expertise in climate adaptation, focusing primarily on societal issues in the neighborhood. This leads to challenges in clearly expressing and justifying why certain ideas and needs cannot be met. However, a contrasting perspective was presented by an official who mentioned that the area manager of the Rivierenbuurt, which is a neighbourhood with lots of flood events, acquired expertise through the neighborhood's past experiences with frequent flood events. This highlights the variation in officials' expertise across districts, representing both a challenge and a strength in the municipality's human resources capacity.

As demonstrated in the Onze Straat greening project, targeting vulnerable groups required additional human and financial resources. This underscores the need to address the previously mentioned deficiencies in time, staff, and finances. In the Onze Straat project, the municipality addressed this challenge through collaborations with external stakeholders in their network, including a local volunteer group and the housing corporation, which provided facilitated projects with additional resources.

In both the Climate Adaptation Strategy and the interviews, the municipality mentions two approaches for doing climate adaptation collectively. Their first approach is to continue to actively reach out to the frontrunners of the city for climate adaptation. However, they also express a willingness to reach out to businesses and residents who are interested in adapting but require additional support and guidance. Many interviewed municipal officials explicitly elaborate on the latter group, considering them as a potential collaboration partner for climate adaptation in the city. *The adaptive inclusivity capacity will be discussed in theme 2.*

As previously mentioned, the municipality puts efforts in collaborations with citizens, private businesses, and other organizations in their climate adaptation strategy. The previous paragraph shows how the lack of capacity in financial resources, time and institutionalized municipal rules and processes often hinder municipal officials from involving residents in projects. This is considered the 'normal situation' within the municipality. Additional approaches for fostering collaborations are required, including identifying ways to alleviate time and financial constraints.

5.2. Personalized approaches and context-specific strategies

This section delves into the opportunities and challenges associated with engaging vulnerable groups. Furthermore, it will address how the municipality tries to integrate their communication methods internally and externally.

5.2.1. Engaging vulnerable groups through collaboration with local organizations

As mentioned earlier, climate adaptation projects on public grounds typically reach *'frontrunners'*. Nevertheless, the municipality aims to broaden participation by including groups seeking involvement but requiring additional support and guidance (Municipality of Amsterdam, 2020). It is important to note that the Climate Adaptation program team is not an executive body for project implementation. Instead, functioning as an umbrella team within the municipality poses challenges for their collaboration with stakeholders. While they maintain an overview of projects and initiatives, they do not engage directly in projects, as this responsibility lies with the departments themselves. For instance, bi-weekly meetings are scheduled with different departments to exchange updates on these projects. However, there is one exception: the program team collaborates directly with external stakeholders in projects conducted through the network approach of Amsterdam Rainproof. Despite challenges related to financial and human resources impacting their inclusive capacity, the program seeks to enhance inclusivity by leveraging the external network of Amsterdam Rainproof. They employ various strategies to enhance collaborations via their network.

First and most importantly, several interviewed officials identified the need for collaborating with local organizations in the neighborhoods as they have more

connection to the residents. They give the municipality possibilities to facilitate low-threshold participation when vulnerable residents are approached through these organizations. Since residents often feel more familiar with these organizations, their participation is often based on trust embedded in a known relationship. A personal and familiar relationship is needed as it is well known that especially vulnerable residents are harder to reach by the municipality (Mees et al., 2017). According to several municipal officials, this is often rooted in distrust and unfamiliarity.

A strategy for establishing safe environments for residents (Glavovic, 2014) involves mapping the existing neighborhood context. Several interviewed officials discussed that the municipality frequently initiated projects without considering this context. Prioritizing local networks becomes crucial as they are more connected to the residents, understanding the neighborhood's demographic, target groups, and effective communication methods. Reaching a larger group of people through current organizational actions is challenging, and several municipal officials agree that achieving full inclusiveness is challenging even for the most successful projects as there will always be segments of the population outside their reach:

"I think we are not reaching a very large group of people with the way we currently organise actions, including my own. And I don't have the answer as to how we can then reach this large group of people or encourage them to get involved. But I do think it is a very important point that we start thinking about who the different target groups are and how those different target groups will react when we tell them they need to change their behavior to adapt to current climate-related challenges" (Community Manager, Amsterdam Rainproof).

Even though several officials perceived adaptive inclusivity as impossible, they did mention the importance of engaging vulnerable groups (Tanner et al., 2009) and not solely focusing on frontrunners. Vulnerable groups were mostly understood by municipal officers as residents with low socio-economic status, residents who were unable to speak or understand the Dutch language and residents who are physically limited or socially isolated:

"Those people have other problems on their minds, they care most about putting bread on the table, feeding their children, getting to work on time because they are busy or overcoming language barriers. It's quite a large, still unreachable group for us to connect with." (Communication Advisor 1, Municipality of Amsterdam).

More specifically, several officials who worked on climate adaptation projects in disadvantaged neighborhoods mentioned how they learned to use more personal approaches to reach residents as usual approaches did not work. For instance, these officials went door-to-door or to local organizations in these neighborhoods where residents often come together, such as football clubs, churches and community centres. This aligns with Naess' (2013) notion that place-specific knowledge is

important, thus knowing who should be included, and how their knowledge should be included. As an example of the reflective capacity, one municipal official mentioned how the municipality tried to reach residents for a climate adaptation project in Nieuw-West through a digital survey. By using this survey, they learned that digital methods only reached highly educated residents. In comparison with the two chosen projects, surveys were not used. Reaching other residents required more extensive methods, such as being visible in the neighborhood:

> "And the lesson for me is, yes, you can utilize those digital resources in that way. But there always has to be something alongside it. Question people, go door-to-door, provide explanations. Show what this is about, instead of relying solely on survey, text and the usual approaches. The human aspect is crucial in it. Because otherwise, you won't connect with what people have time for, what they can understand in terms of language or perhaps they are simply low literate. Or they just don't have a connection to the subject. So, in various ways, take precautions to reach vulnerable groups" (Communication Advisor, Municipality of Amsterdam).

Although this demonstrates both the presence of reflectiveness and attempts on including vulnerable people, it is essential to acknowledge the challenges in reaching this group. First, the climate adaptation strategy does not explicitly mention ways to reach vulnerable groups. The municipality states that reaching vulnerable residents is a difficult task, complicated by the previously mentioned time, finances and human capital that the municipality sometimes lacks. Several interviewed municipal officials and residents mentioned that there is normally little trust in the municipality due to previous experiences or due to the perceived distance between residents and the municipality. In addition, the size of the municipality is mentioned as a hindrance, meaning that people do not know from each other what they are doing to make climate adaptation inclusive. Lastly, residents are a diverse group with different opinions and preferences.

Furthermore, one interviewed official mentioned how residents vary in their preferences and levels of involvement when it comes to climate adaptation measures. The diversity in their willingness to engage with climate adaptation measures adds to this complexity, as this ranges from those who are enthusiastic to go all-in [red. the frontrunners] to others who are content with minimal contributions, such as planting a single plant. This diversity poses a challenge, emphasizing the need for context-specific approaches rather than a one-size-fits-all strategy.

Although involving vulnerable groups is seen as a challenge, more attempts are being made to involve them in climate adaptation projects of Amsterdam Rainproof. In the Onze Straat Actie, the idea of greening front- and backyards came from the housing corporation Eigen Haard and stichting Buurthulp. They asked the municipality and Amsterdam Rainproof to facilitate the project. In addition, Stichting Present, a local organization that provides volunteers, was involved to perform the greening and tile-

swapping. Within the project, the target group were specifically vulnerable residents, as they have more difficulty adapting their environment to climate change. The area manager mentioned how he wanted to spruce up residents' yards that were overgrown, had many loose tiles and looked shabby. Often, this vulnerable group experiences more heat in summer or have puddles in their gardens which can even cause water damage. Without them knowing, they contribute to climate change as previously mentioned:

"Bicycles, refrigerators, furniture are in the garden. The gardens are used as storage space. With this project, we also wanted to make people aware that a garden should really be used as a garden. That you can enjoy it in the summer, that you can plant trees and put in greenery, and make the atmosphere a bit enjoyable. That in the summer, you can get away from the heat to your garden and cool down there. That awareness sometimes doesn't come naturally" (Area Manager, housing corporation Eigen Haard).

The local organizations seemed very content with their approach, and this was backed up by one of the residents:

"I now have room to plant greenery in my yard. At first, I was hesitant to join the project as I did not understand it. But I am happy to have joined. The Area Manager was a great help in making me understand the project" (Resident 1, Onze Straat project).

In the RESILIO project, the social housing on which the blue green (BG) roof was built, was chosen as it was marked as a vulnerable spot on Rainproof's water bottleneck map and it was a suitable roof of a housing corporation that would cooperate (RESILIO, 2020). Different from the Onze Straat Actie, only the area manager of the housing corporation was involved as a local stakeholder who could connect the project to residents. Despite this research being conducted in a neighbourhood with vulnerable residents, the project used resident letters to inform residents and information meetings as well as joining local events to engage and reach a wider group of residents. Despite these efforts, the general turnout was low (Holstein et al., 2022).

The final report shows that despite the efforts of the project, involving residents was considerably difficult, simply because residents were hardly able to influence the construction of the BG roof itself. Most of the residents were reached through existing neighbourhood activities, which comes back to the argument of reaching the frontrunners. Two of the residents mentioned that they had to go to the previously mentioned neighbourhood activities themselves if they wanted more information. In addition, two other residents mentioned that they did not know about these activities and mentioned the flyers they received in the mailbox as the only way they were communicated.

The findings above highlight a distinction in the level of resident involvement compared to the Onze Straat Actie.The findings of both projects demonstrate the practical differences that can arise between climate adaptation projects.

5.2.2. Collaborations through connecting to residents' motivation to adapt

One of the ways of facilitating inclusive processes in the strategy is by stimulating residents' motivation to adapt. Several interviewed officials argue that the municipal organization has an exemplary function by showcasing its successfully finished climate adaptation projects. Talking about their perceived successful climate adaptation projects, they mentioned how residents were motivated to take climate adaptation measures themselves upon witnessing the success of these projects. In the mentioned example of the Rivierenbuurt neighborhood, residents were initially against the plan of removing parking areas to plant more greenery that would prevent water nuisance. The Rivierenbuurt is one of the neighborhoods in Amsterdam that experiences flooding after extreme downpours. However, after being properly involved in the process, they became more aware of climate adaptation and its implications for climate adaptation:

"In the Rivierenbuurt, the residents eventually saw that we constructed very nice wadis, and that they have a purpose. They know that the neighborhood was completely underwater eight years ago and that this measure is going to help. And then you do notice that the participation part was not just informing, but that people also feel more ownership of the neighborhood" (Strategical Advisor, Municipality of Amsterdam).

In the Onze Straat project, the area manager mentioned how he wanted to create a culture around greening and sustainability, encouraging residents to recognize their roles and responsibilities in climate adaptation. He stated that residents who participated in the project wanted to participate a second time, while others went to the Area Manager with the idea of greening the tree beds. Additionally, one resident mentioned how her neighbor was enthusiastic to participate in the next project:

"I bumped into my neighbor who asked me about my (greened) garden. She thought it looked nice and wanted it for her garden too. I told her that she should go to the Area Manager for that" (Resident 2, Onze Straat project).

The role of local volunteers was important for the residents of the Onze Straat project. These volunteers provided social interaction and assistance to socially isolated residents during the greening of their gardens. One resident shared that due to her old age, she seldom goes outside. She considered the project successful as it provided her with the opportunity to engage in conversations with the volunteers and enjoy the benefits of a green garden. However, this outcome may not be generalized as the area manager revealed that many residents that participated in the project did not speak Dutch fluently, impeding communication with the volunteers.

This project not only enabled vulnerable residents to have contact with volunteers and receive support when they residents were unable to do so themselves, but it also stimulated motivation among residents to adapt, as evidenced by their presentation of new ideas for greening the canopy driplines to the Area Manager. This aligns with Glavovic (2014) and Ayers (2021)'s finding of intrinsic motivation being a driving force behind residents taking concrete actions in support of climate adaptation initiatives within their community.

"It was discovered that there were numerous canopy driplines along the same street. The residents' initiative proposed collectively planting greenery around all of these canopy driplines to create an area surrounded by beautiful, flowering plants. We, in collaboration with Amsterdam Rainproof, facilitated this idea and explored its implementation. Subsequently, we contacted the municipality's area manager, who was tasked with making a decision regarding the proposal. We convened a meeting to discuss the matter, assessing the availability of funding and exploring additional resources. As a result, 27 tree beds were planted." (Quote from the Community Manager, Amsterdam Rainproof).

The RESILIO project presented different scenario, highlighting the impact of less motivation to adapt and self-interest on resident engagement. Unlike the Onze Straat Actie project, RESILIO residents demonstrated less enthusiasm. The final report attributed this lack of engagement to residents' limited influence on the construction of the blue-green roof. Some residents acknowledged their lack of motivation to adapt. A resident from RESILIO exemplified this perspective by emphasizing the specific challenges related to the project, such as the overheating issue on the top floor:

"The top floor under the roof becomes very hot in summer. I believe the green roof helps with cooling and retains heat, preventing the flats below from becoming too hot. Therefore, it is particularly beneficial for residents on the upper floors. Since I live on the ground floor, my house naturally stays at 18/19 degrees. Since I do not experience this heat, I have chosen not to be actively involved." (Quote from Resident 2, Makassar Street).

Several interviewed residents, except for one on the top floor who was already engaged in sustainable activities outside of the project, were not engaged in the project. As she also experienced extreme heat in the summer, she was motivated to engage in the project and attended several information evenings. However, after the project, her overall satisfaction declined due to the unfulfilled promise of a resident evaluation. This lack of follow-up in project communication and evaluation contributed to uncertainties about her participating in future initiatives. This highlights the importance of post-follow-ups in ensuring whether residents will or will not take further action in future climate adaptation projects, and how to improve their process.

5.2.3. Personalized approaches as an extension of passive communication methods

The way in which the municipality communicates with stakeholders on different levels is important for the integration of their communication methods and exchange of information within climate adaptation. This means sharing information and coordinating actions across various departments and external organizations involved in climate adaptation to make a shared understanding of climate risks and adaptation measures possible (Datola, 2023). As mentioned in the theoretical framework, an effective communication approach is crucial and should be spread along various scales, departments, and systems (Spanjaard & Water, 2017). Internal (municipal organization) and horizontal coordination of communication (with their external network) can encourage collaboration with external stakeholders by fostering a shared understanding of climate risks and adaptation measures (Storbjörk, 2010; Spanjaard & Water, 2017).

First, the municipality mainly reaches out to residents through flyers, resident letters, local newspapers, the municipal website and Amsterdam Rainproof's website. This can be seen as the most passive form of communication to which few residents engage with according to municipal officials. By reflecting on previous climate adaptation projects, municipal officials learned that these passive communication forms work the least. Rather, the findings show how they attempt to commit to more active communication methods. To substantiate this argument, one municipal official who worked on a tile pick-up service project in the North of Amsterdam, handed out mandatory surveys in which participants, who were residents in the designated streets, had to reflect on their experiences in the project through three questions. This survey showed that most of the participants got their information about the project by word-of-mouth. Not only does this example demonstrate the reflective capacity as a previous success of a climate adaptation projects is mentioned, it also hints at a potential shift toward incorporating active communication methods as a supplement to passive ones. However, it's important to note that this is just one instance. The majority of interviewed officials concurred that the passive approach is still leading. When opting for a more personalized approach, it should be a conscious decision to apply this as an addition to the passive communication methods.

As an example, the local volunteering organization involved in the project already had previously engaged in social gardening in the neighborhood before they joined the project. This showed their familiarity with the area and its residents. In addition, as previously mentioned, working together with local organizations results in more personal communication methods:

"You must imagine in such a neighborhood, where people with quite a lot of problems live, they cannot take climate adaptation measures themselves. Then the Area Manager from the

housing corporation plays a very, very important role here. He knows those people and goes knocking on everyone's door. That's really... you can't even imagine. [...]. After or before this, we took in consolation with local stakeholders what approach is appropriate in this neighborhood. We provide flyers, and the housing corporation might do an extra bit here, like visiting twice. That contact is super, super important, and so is the housing corporation" (Community Advisor, municipality of Amsterdam).

In the project, they started with residents' letters, and then went door-to-door with stichting Buurthulp to remind residents that the project was coming up a week before it started. As everyone in the neighborhood knew the Area Manager, the threshold of joining the greening project became lower for residents as they trusted the Area Manager more. He had even convinced one resident to stay home:

"On the day of the project, I was at the home of a lady who wanted to leave during the greening action while residents should stay at home. After all, the action is done for them, and volunteers come at the times they choose. Of course, it would be decent if the lady would provide something like tea or biscuits. Because I was able to persuade her, she stayed during the project" (Area Manager, housing corporation Eigen Haard).

Finally, the local organizations attempted to listen to the different wishes of the residents:

"When we [red. the area manager and the volunteering organization] visited the assigned houses, people could also indicate if there was a piece of their garden that they did not want to change. For example, we visited a gentleman who had already planted greenery in a section. We wrote this down and passed it on to the volunteers who helped tidy up his garden" (District Manager, housing corporation Eigen Haard).

During the interview, the area manager provided me with a list of house numbers of the projects' participants, deliberately excluding those residents that did not wish to engage in a conversation. This demonstrated his personal familiarity with the residents involved in the project. This personal approach was confirmed by one of the interviewed residents, who mentioned that the area manager came back two times:

"I received a letter about the project, but I didn't quite get it at first. It said the area manager was coming to my house to clarify what the greening project is about. He explained that it's good for the climate or something. Initially, I was unsure, thinking I had to pay [for the greening]. However, I eventually agreed to join. A week before the project, the area manager came back and scheduled a date and time that worked best for me" (Resident 2, Onze Straat Actie greening project).

In contrast to the personal communication methods of the Onze Straat project, the RESILIO-project used passive communication methods. Several residents mentioned they were only reached by information flyers and residents' letters. Although the

project also used some active communication methods, such as information meetings and being present at a neighborhood event, these methods were hardly mentioned by the interviewed residents. The two residents who mentioned the green roof information event emphasized that they had to take the initiative themselves to register for the event and highlighted their own keen interest in the environment. They also pointed out that this step might be too big for individuals who do not experience the effects of heat, are not interested in the climate or do not speak the language. One resident that did not go to any of the organized events, confirmed this:

"There was a meeting down here in the communal courtyard garden. But to use that courtyard garden, residents have to make a small contribution for its maintenance. I don't contribute to that. Why should I even do that when I can just watch it from my balcony?" (Resident 2, RESILIO Project).

In summary, a large part of the interviewed municipal officials acknowledges the growing realisation that achieving full inclusiveness is challenging even for the most successful projects, as there will always be segments of the population outside their reach. In the case of the Onze Straat greening project, the use of a more personal approach enabled the municipality to reach some residents from the vulnerable target group. The RESILIO project, in contrast, lacked involvement from local organizations, resulting in a less personal approach as team members from the RESILIO project had to approach residents during information markets with less help from local organizations.

5.3. Enhancing internal integration of climate adaptation communication

As all interviewed municipal officials were from the program team Climate Adaptation, they primarily discussed how communication around climate adaptation projects flows from this team towards the other departments through presentations, newsletters, or meetings. Despite the program team's overarching role within the municipality, officials mentioned the challenge of overseeing climate adaptation projects across all departments. To address this issue in a more organized manner, they convene monthly with a project group comprising representatives from various departments. These representatives exchange information and insights gathered from the program team and project group within their respective departments. However, understanding the full scope of activities within the municipality appears to be a difficult task, as indicated by all interviewed municipal officials, owing to the organization's large and complex structure.

Municipality wide, there are learning trajectories around climate adaptation that municipal officers can join. Furthermore, the municipality has set up the executive task 'Sustainability Unless', a guideline to implement sustainability in every project. Additionally, there are presentations and seminars by colleagues who specialize in climate adaptation. Several officials highlight the importance of knowledge sharing and

the ability to connect with each other when they require information on climate adaptation for their projects, to identify areas where they can take action:

"It starts with getting to know each other, tell each other about our work, and taking each other by the hand. As an example, we [red. the Program Team Climate Adaptation] have a calendar with ongoing activities. Here we inform our colleagues that we know are busy with the same themes as we are. We reach out to each other when we know we can help other colleagues with a project. But also on broader level, we have done a program last Sunday for the whole department to show what value we can have for them" (Communication Manager 2, Municipality of Amsterdam).

Since most interviewed experts work within the climate adaptation program team, they are more knowledgeable about climate adaptation, related projects and ways in which information can be shared within the internal organization. This is confirmed as the interviewees have mentioned several ways in which they already attempt to share climate adaptation successes, such as presentations, meetings and events. Although the program team is committed to educating about climate adaptation, it is challenging to determine whether this also leads to awareness and openness to other perspectives. This has also been emphasized by the communication advisor, as she identifies three groups of municipal officials:

"There is a group of civil servants who want to address the urgency. These are literally colleagues who have written the climate letter and participate in protest marches. Additionally, there is a large group that knows, 'Oh yes, it's two minutes to twelve, we need to do something about that.' They do not see how it is connected to daily work. But that is a group that, if we can get them moving, also wants to contribute. Lastly, there is also a group that thinks 'Climate, forget about it. There may also be some conservative views within the civil servants" (Communcation Manager 2, Municipality of Amsterdam.

Lastly, the compartmentalization of the municipality often makes it unclear who is responsible for climate adaptation measures. This highlights both an internal and external challenge. Internally, the large municipal organization hinders the swift identification of responsible people or teams for climate adaptation. This also has external effects for the communication lines with residents as residents find it complicated to look for the right person to reach out to within the municipality:

"One of the challenges are the sluggishness and bureaucracy within our own organization. The compartmentalization, which makes it a lengthy process to identify individuals responsible. And that is very ambiguous for residents. For a resident, there is one municipality. So, I would really, really, really, really, like to take a step forward in improvement in that regard" (Communication Manager, Municipality of Amsterdam).

Regarding internal coordination, it cannot be ruled out that the municipality of Amsterdam, as a large organization, may struggle with integrating climate adaptation

into the organization. As it has been mentioned before, communication about climate adaptation and associated projects is mainly done on an individual level, and the municipality is too large to involve everyone. When it comes to communication from the Climate Adaptation program team, these experts are intrinsically driven and adopt a more complex approach than the rest of the municipality.

5.4. Flexible municipal roles

As mentioned earlier, financial and time constraints lead to limited citizen involvement in climate adaptation projects. Municipal officials seek to enhance the active involvement of residents and local organizations through their external network approach. Within these collaborations, the interviewed officials perceived their role as facilitating, exemplary and organizational:

"We want to facilitate residents to be able to do things. So, we can try to make it easier for them by making sure they have the right information for example. We could sometimes finance a project, so do a subsidy for certain things. For some processes, we already have very clear agreements. For major maintenance, we have very clear agreements. That's how it is and so it falls into that" (Strategical Advisor, Municipality of Amsterdam).

More importantly, it is about giving residents an action perspective:

"And then very clear action perspective. Want this too? Click here to apply for a facade garden. Wondering which plants are suitable? Click here for inspiration or more information. That sort of thing. So very clearly also action perspective. What can you do yourself?" (Communication Advisor, Municipality of Amsterdam).

According to several interviewed officials, the municipality needs to be transparent about what they can do, and when it needs help from residents for climate adaptation. This requires arranging conversations between residents and the external network of the municipality, linking the right people and needs to the right parties, which can be challenging. For instance, this means arranging the conversation between residents and housing corporations when they have a rental home, and also looking for other parties that can help with the climate adaptation projects. This confirms the findings above showing the importance of more (local) organizations to compensate the lack of financial and human resources:

The moment a resident has questions about how their rental property can be made more sustainable, we need to make sure that we do not only get the housing corporation and resident in conversation, but also look at how to involve other important parties in our network. We should look together within our network approach to see what we [a collaboration of parties] can do and arrange the conversation to look if we can replicate our steps (Communication Advisor, Municipality of Amsterdam).

The importance of collective cooperation between parties was also stressed by the neighborhood director in Slotervaart. Here it also becomes clear that the facilitating and organizational role of the municipality is seen as a strength as it made the project run more efficiently and easily:

"The municipality and Rainproof were professional. They laid the demarcation well and addressed well which parts of the yards to green so that the volunteers could work independently and knew where to put greenery, where to put tiles. Very nice schedule made for the project, and you could just follow that and get to work" (Area Manager, housing corporation Eigen Haard).

Thus, the municipality takes on a facilitating role through their organizational and activating capabilities. On the one hand, the municipality takes on a facilitating role in which it provides a framework to organize the project, as seen in Onze Straat Actie. On the other hand, they have an activating and motivating role by providing residents with prospects with information. However, as this finding is only shaped by the municipal interviews, it is difficult to say if more space is given to residents and local organizations to implement their actions.

Subsequently, as many interviewed municipal officials perceive this facilitating role, they assume that it can lead to more active participation by residents. According to the strategy and confirmed by officials, residents have a responsibility to take measures in their area when the municipality cannot. Additionally, it is notable that some municipal officials primarily emphasize the capacity of residents to take initiative and support one another. Secondly, they claim that granting residents an agenda-setting role is important because they can assist housing associations and also influence policy adjustments:

"Residents also have an agenda-setting role. They can of course very nicely indicate, I'm here in a social rented house and every summer it's 45 degrees here. I don't know that, but it's very nice that they tell you, because here the municipality can only help as a partner of a housing association or by changing policy. If we see that half of the houses heat up too much, then there really needs to be strict regulation about that. So that is then, for example, using their local knowledge that they have" (Strategical Advisor 2, Municipality of Amsterdam).

In some cases, the agenda-setting role of citizens favors the municipality as they have difficulties overseeing climate-related problems in the city:

"I discussed with someone who is manager of all the lantern posts. And who said, I really can't check every lane pole. But what I can do, is every time a resident says, this lane pole broken, who has been waiting to screw in a new bulb. And that is much less work than checking all lantern poles every time. The same goes for climate adaptation. We also can't see directly from

the office where the big puddles are, where it really gets too hot. For that, we also need residents to tell us." (Strategic Advisor 1, Municipality of Amsterdam).

According to the interviewed municipal officials, the common goal lies not only in organizing projects that encourage collectivity, but also in making residents aware that they play a major role in the outcome of climate adaptive measures that the municipality implement. In most cases, they see the actions of residents as an 'extension' of their measures. Residents should be given tools to gain problem-solving capacity, which is seen as an element of inclusive processes (Glavovic, 2014). One interviewed municipal official mentioned that this is sometimes very difficult as not all information provided by citizens is of the right quality, or because there is often self-interest behind it. On top of this, several officials mentioned how challenging it is for municipal officials to create a better environment in which residents can take climate adaptation measures as they have to perform a multitude of tasks on the same square meter in the city. Often, different policies do not align with each other:

"If I [as municipal official] want to green the area, the greening can also produce nuisance animals. And then you get the report from the GGD (the Municipal Health Services) who says 'No, take away that greenery and put tiles.' This happens on the same square meter with petrification, with new play facilities, public transport and houses that must be built but also greened. These challenges will not result in climate-neutral situations as there is so much that we have to do on the same piece of the city" (Communication Advisor, Municipality of Amsterdam).

According to one of the officials, the municipality needs to work from one common perspective and vision, so it is more trustworthy when they go to the citizens to ask where they need them and how they can take up the goal of climate adaptation together.

Faced with constraints on citizen involvement within their own organization such *as conflicting policies and varying information quality of residents, the municipality* uses their external network approach, assuming roles of facilitation, activation, and organization. This reflects a nuanced strategy in which they try to facilitate or organize climate adaptation projects in collaboration with external stakeholders such as residents and local organization. Here, the municipality needs to be transparent about its capabilities and the necessity of municipal-citizen collaboration as it can create collaborations within its external network of Amsterdam Rainproof. Furthermore, mentioning the agenda-setting role of residents shows the importance of the municipal-citizen collaboration.

5.5. Reflectiveness on past projects

Reflectiveness, as described by Kristianssen & Granberg (2021), refers to what a municipality learns from various local events and crises. Within the context of this

research, reflectiveness is defined as the process of examining past projects to recognize strengths and weaknesses that have implications for future projects.

5.5.1. Post-follow up and evaluation

First, reflectiveness is initially observed in the municipality's commitment to long-term working strategies. Despite the challenges around knowledge sharing within the whole municipality, efforts are made to adapt working methods around climate adaptation by drawing insights from previous projects and sharing them with other colleagues. In the projects that were perceived as successful by interviewees, the municipal officials reflected on the importance of personal and careful approaches to engaging residents. In some projects, a post-follow-up strategy was implemented to assess both residents' needs and areas where the municipality can enhance its efforts.

As noted earlier, the Onze Straat greening project was perceived as successful by the interviewed local organizations of the project due to the collaboration between the municipality, local organizations and residents and its long-term approach. Two interviewed residents confirmed the success, as they reflected on their own experience within the project:

"I am happy that my garden has been greened and look forward to the next time maintenance is done" (Resident 1, Onze Straat project).

One resident spread the word about the project to hear neighbors:

"The project was clearly explained by the area manager. Whenever I met my neighbours, I would ask them if they were also participating in the project. I noticed that most didn't understand, so I tried to explain myself what the greenery is for. I am happy to contribute to the environment" (Resident 2, Onze Straat project).

Contrastingly, the experiences of two residents from the RESILIO project reveal a lack of follow-up and engagement, particularly among those who were less involved. For instance, some residents were unaware that they could access the roof by scheduling an appointment with RESILIO, indicating unfamiliarity and distance from the project. Notably, a resident who lived on the top floor and was more involved in the project shared dissatisfaction with the post-project evaluation. At the final party, she was informed about another evaluation among all residents on certain aspects of the roof. She expressed a prolonged wait for this:

"If I was approached more personally during the project, I would have asked more questions about the project. If they had reached out through an evaluation or survey after the project ended, I could have presented my problems more. It would have been nice if there was a number left that we could contact. That should also be important to them [red. RESILIO] since it was an experimental project, right?" (Resident 4, RESILIO project).

In contrast to the findings in the RESILIO project, the tile service in Amsterdam Noord, was perceived as successful by several municipal officials. As previously mentioned, the municipality distributed mandatory surveys to the tile campaign participants to gather feedback on their experiences upon project completion. This led to reflective insights for the involved municipal officials regarding their communication strategies and the need to be present in the neighborhood:

" A lot of people found out about the tile service via word of mouth. This confirms for us that the project must connect to people's motivation to adapt, because obviously people are talking about it. It also confirms for us that we need to be present in the neighborhood: to be visible wherever people are socially engaged with each other, like local initiatives, neighborhood gardens, or the 'Huis van de Wijk,' for example. It showed us where our communication needs to be visible and what the needs of the participants are" (Communication Advisor 1, Municipality of Amsterdam).

As highlighted earlier, several residents participating in the RESILIO project expressed lower satisfaction levels, mainly due to the lack of motivation and the absence of a post-project evaluation. Reflectiveness was notably lacking in the project's approach as two of the interviewed residents mentioned a lack of follow-up measures. One resident cited a key reason for dissatisfaction, pointing out that most communication channels went through the housing corporation rather than directly with the project team. Consequently, when residents sought clarification or had inquiries about the project, they often reached out to the housing corporation representative. However, this individual lacked comprehensive knowledge about the project, indicating a gap in direct communication with the project team. This lack of reflective communication practices hindered residents' ability to fully engage and participate in the initiative.

"We must ensure that we also offer something to the citizens of Amsterdam. That is an expansion of the themes. It involves asking them again, what do they need? What does that mean for future policy? So, you literally gather through conversations with and in the city what activities you need and incorporate them into your action plans. This includes having shorter communication lines between the municipality and residents (Community Manager 1, Municipality of Amsterdam).

5.5.2. Feedback loop between policy and practice

This sub-section highlights the significance of establishing a feedback loop between policy and practice. Several interviewees highlight the importance of establishing a feedback loop between policy and practice, stressing that ineffective policies should be revisited and adapted based on practical experiences. An example is the network approach of Amsterdam Rainproof, which initially focused on rain resilience but may have overlooked other crucial themes. The narrow focus on heavy rainfall and flooding

overlooked other potential benefits of climate adaptation measures, such as greening, in addressing issues like drought and heat.

During the course of this research, the external network approach transformed from Amsterdam Rainproof to Amsterdam Weatherproof in February 2024. This transformation indicates a shift in the municipality's perspective on climate adaptation, recognizing it as a complex and interconnected challenge that requires knowledge exchange and collaboration with professionals, residents, and local initiatives (Weerproof, 2024). This realignment is consistent with prior literature on collaborative governance, highlighting the collective nature of goals that cannot be achieved individually (Emerson et al., 2011; Emerson & Nabachi, 2015). Furthermore, the Onze Straat greening projects are acknowledged as a successful and exemplary project on the Amsterdam Weatherproof website, as well as in the new Implementation Agenda of 2023. In this agenda, the municipality reflects on past climate adaptation initiatives and outlines future actions. This aligns with the previously discussed exemplary role of the municipality in inspiring and motivating citizens through actions they can undertake themselves.

The Onze Straat Actie exemplifies this finding by selecting local volunteers, ensuring long-term commitment rather than a one-time initiative by the municipality. The interviewed residents expressed this in a more nuanced manner, than the Area Manager and the Quartermaker, who were very positive. Both residents stated that they would participate again if there were another project involving garden maintenance. The presence of continuous involvement of local stakeholders, such as the area manager and local volunteers aligns with Gies's (2019) finding that the deployment of climate or community-related positions in projects can form a direct communicative bridge between citizens and municipalities. Contrary to the RESILIO project, there were more local stakeholders involved in the Onze Straat greening project. This contributed to the human resource capacity of the project.

"Often, the projects from the municipality are one-offs: they are there for a day and then they are gone. Volunteers who come from the neighborhood were specifically chosen so that the project can continue from local forces" (Quartermaker, Buurthulp Nieuw-West).

Overall, the reflective capacity among the interviewed municipal officials was evident, with reflections on both successful efforts and encountered challenges. However, while these reflections provide valuable insights, it remains unclear how these lessons will be translated into action in future projects. The rationale behind this lies in the novelty of climate adaptation strategy and its projects. As the municipality is currently transitioning between the policy implementation and evaluation phases, it still provides limited opportunities thus far for reflective lessons to be integrated into future initiatives.

5.6. Summary of the collaborative governance capacities

As the capacities are intertwined, it becomes challenging to determine whether they contribute or obstruct the collaboration processes within climate adaptation projects. A summary of the capacities is provided as a foundation for the assessment of the collaborative governance capacities in the following paragraph.

First the municipality of Amsterdam faces constraints in implementing climate adaptation measures, with limited resources and time allocated for citizen collaboration. The municipality relies on a budgetary management cycle, incorporating climate adaptation measures into planned street replacements, but struggles with institutionalized processes and the lack of time for citizen engagement. Despite the acknowledged importance of collaboration with residents, businesses, and other stakeholders, the municipality encounters challenges in balancing the internal constraints and the desire for collaboration with external stakeholders in their climate adaptation projects.

Second, the municipality encounters challenges in reaching vulnerable groups. Efforts in reaching them are done through their external network Amsterdam Rainproof. The Onze Straat project has demonstrated how collaborations with local organizations and professionals enhance both adaptive inclusivity as well as the integration of communication methods with external stakeholders which emphasize working together with knowledgeable local organizations. These collaborations recognize the importance of personal approaches and active communication methods in overcoming challenges in engaging vulnerable residents and promoting collective climate-adaptive measures. Moreover, collaboration with citizens requires stimulating their motivation to adapt through the provision of information or exemplary successful projects. This also requires the visibility and presence of officials or local organisations in the neighborhood for a more personal and trusted approach. Regarding internal communication, challenges within the large organisational structure are highlighted, indicating potential difficulties in integrating climate adaptation efforts across the municipality.

Third, through examining the developments and shifts in municipal and citizen roles, the importance of flexibility from the municipality has become apparent. On the one hand, the municipality assumes a facilitating role as they have the ability to engage and activate residents as well as to organize and facilitate events like the Onze Straat project, with the aim of fostering awareness and motivation among residents. On the other hand, residents are expected to play an agenda-setting role in collectively addressing climate-related challenges and actively engage in climate adaptation initiatives. This highlights the importance of shared responsibility.

Fourth, reflectiveness on past projects reveals a commitment within the municipality of Amsterdam to learn from previous initiatives in climate adaptation. The municipality is taking steps forward as their reflectiveness on collaborations is seen on the website of Amsterdam Weatherproof and in their Implementation agenda 2023. Challenges and opportunities of reflectiveness have been mentioned through the Onze Straat and RESILIO project. However, the translation of reflective lessons into future projects remains uncertain, given the ongoing transition between policy implementation and evaluation phases and the novelty of climate adaptation strategies. A summary of the findings is given in table 4.

Table 4: Findings of the collaborative governance capacities in policy and practice.

Collaborative governance capacities	Description	Policy (Climate Adaptation Strategy)	Practice
Adaptive Inclusivity	Ensuring that all residents and involved stakeholders have access to municipal infrastructure and services, including providing an opportunity for all people to participate in decision-making processes (Tanner et al., 2009; Ayda Eraydin, 2012).	*Who or what adapts* Municipality faces challenges especially in reaching vulnerable groups. While they are acknowledged, the policy level lacks explicit details on the approach used to engage with them. There are several ways in which the municipality highlight m*otivating inclusive processes* in their strategy through their exemplary function. For instance, by providing stakeholders information on adapting. However, no concrete measures are mentioned.	*Onze Straat greening project* demonstrates structured and organized collaboration among the municipality, local organizations, residents, and professionals. The project adopts a personal approach and several residents actively engage by reaching out to local organizations for follow-up. *RESILIO project* had limited outreach to residents due to the absence of a personal approach. RESILIO mostly communicated with the housing corporation, failing to spark motivation among residents who had minimal contributions to the green roof. The project mostly reached frontrunners.
Integration of communication methods	Integration is defined as *making sure that plans and actions are integrated across multiple departments and external organizations* (Coaffee, 2008; Tyler & Moench, 2012).	*Horizontal coordination:* Several communication strategies were mentioned that would stimulate better collaborations with citizens and local organizations based on previous projects. Multiple officials discussed their insights gained from previous communication approaches, noting their ineffectiveness. *Internal coordination:* Internal coordination is present, but officials mentioned the municipality lacks knowledge and resources organization-wide for climate adaptation. This impacts collaboration with residents when they are not willing to engage.	*Onze Straat greening project:* door-to-door and personal communication methods through local organizations. This ensured that the project had a lower threshold for residents to participate. *RESILIO:* mostly passive communication methods. The information meetings reached mostly frontrunners. Most residents were not reached as the roof did not contribute to their own interest.

Reflectiveness on past and future	The reflectiveness of an institution can be analysed by looking at what a municipality learns from different local events and crises (Kristianssen & Granberg, 2021).	*Reflectiveness on the past:* reflectiveness on past projects was a consistent practice among officials and documented sources. This highlighted both the strengths and weaknesses of successful projects. *Reflectiveness on the future:* As the strategy is still transitioning from its policy implementation phase to the evaluation phase, it is too early to say how the reflectiveness will affect future projects. This means that it is difficult to conclude on this indicator as it needs further research.	Onze Straat greening project: due to its success, more follow-ups have been planned in the rest of Amsterdam. The Onze Straat greening projects are mentioned as exemplary projects in the strategy. RESILIO: residents mentioned the lack of evaluation after the project ended although this was promised by RESILIO.
Availability of resources	Resourcefulness is defined as the capacity to mobilize various assets and resources in order to take action (Spaans & Waterhout, 2017).	*Human resources:* dual aspect of internal constraints and external opportunities necessitates the municipality to create a balance between managing its internal limitations and relying on external resources. It is mentioned in the strategy how more personnel can become available in projects through collaboration with external stakeholders. *Financial resources*: financial constraints within the municipality versus the strategic focus on external collaboration and financing external projects counterbalance each other. Finances were only generally discussed during the interviews.	Onze Straat greening project: human and financial resources were present due to collaboration with several stakeholders. The financial resources mainly came from the municipality, while the human resources came from external organisations. RESILIO: financial resources were present due to subsidies from higher policy levels. Human resources were less evident as several residents expressed a desire for a more personal approach. Contact with residents went solely through the housing association representatives.

5.7. Collaborative Governance Capacities Wheel

The last part of this study uses the adaptive capacity wheel of Gupta (2010) to assess the strengths and weaknesses of the identified CG capacities. Therefore, for the purposes of this research the wheel is adapted into a Collaborative Governance Capacities Wheel.

The CG capacity wheel incorporates scores from both the policy and two practical climate adaptation projects. I chose to merge these into one wheel of the CG capacities, as it provides a more balanced assessment. For example, relying solely on scores from municipal officials regarding the policy would skew the results positively, as discussions primarily centered around notable successes and less around challenges. Therefore, it was imperative to include perspectives from local organizations and residents to offer a clear and unbiased overview of the presence or absence of CG capacities and their impact on collaborations.

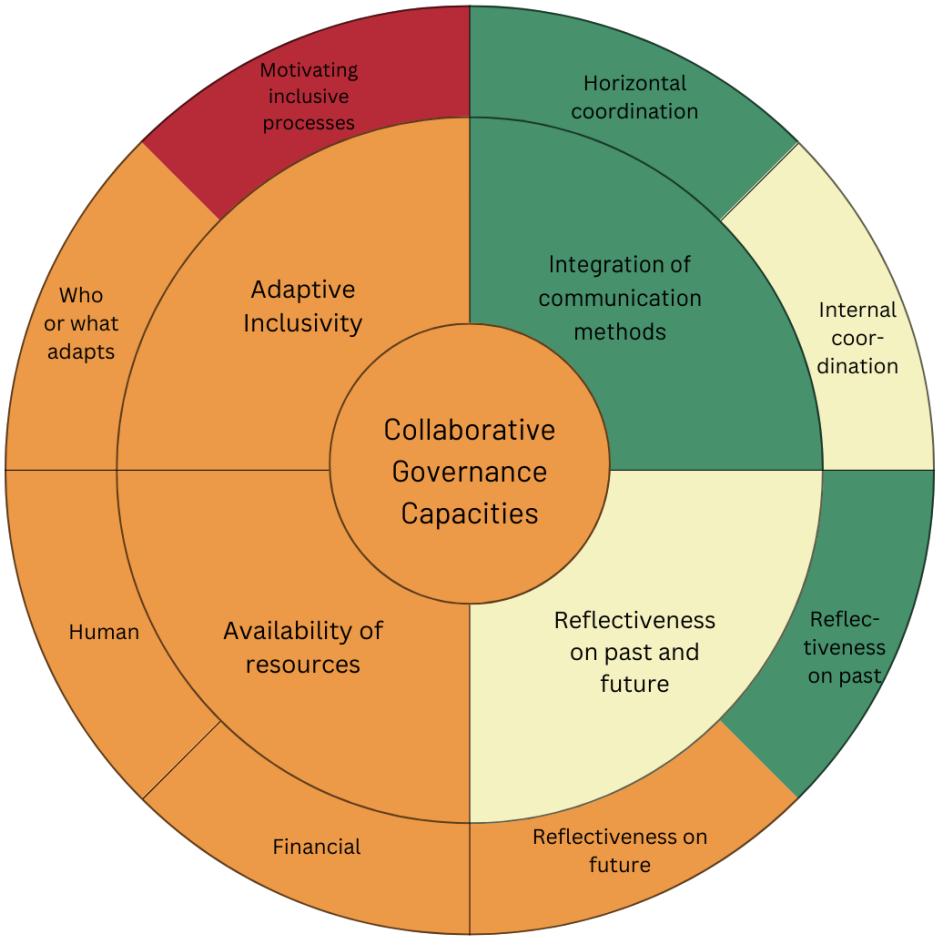

Figure 13: Assessment of the municipalities' collaborative governance capacities in policy and practice.

Presence of CGC in the municipality of Amsterdam's Climate Adaptation Strategy	Score	Aggregated scores for dimensions and collaborative governance capacities
High presence	+2	+1.01 to + 2.00
Slightly high presence	+1	+0.01 to + 1.00
Moderate presence	0	0
Slightly low presence	-1	-0.01 to 1.00
Low presence	-2	-1.01 to -2.00

The overall score of the CG capacities implicates that there is a slightly low presence of collaborative governance capacities in Amsterdam's Climate Adaptation strategy. This presence can be attributed to various intertwined factors, as highlighted in the summary of the capacities (chapter 5.6). Below, a short description of the assessment results is given. The argumentation for this assessment is explained through the four scores given to the four capacities and is put in appendix C.

Firstly, the presence of adaptive inclusivity is slightly low, indicating challenges in ensuring the inclusion of all relevant stakeholders, particularly vulnerable groups. The score reflects the need for improvement in efforts to engage diverse stakeholders effectively (-0.875). The presence of the communication methods is slightly high. This emphasizes the strengths of horizontal coordination despite challenges in the internal coordination (0,33). Thirdly, there is a moderate presence of the reflectiveness on past projects. Although the municipal officials reflect on past project and learned lessons, there is uncertainty in how to apply these insights into future projects as the strategy is still in its implementation phase. Thus, not enough can be said about this capacity (0). Lastly, for the availability of resources, there is a slightly low presence. By balancing out the internal human and financial constraints and the focus on additional resources of their external network, this score indicates that the internal challenges prevail. (-0,625).

Although the municipality's collaboration efforts are highlighted and recognized in the strategy, in practice it seems less evident as different contexts and stakeholders need to be considered. The slightly low presence of the capacities show room for improvement in which the municipality should be flexible, work on context-specific strategies and collaborate with external stakeholders to balance out their internal and institutionalized challenges. Moreover, the score indicates that the municipality must develop additional strategies to reach not only the frontrunners but also include vulnerable groups. The climate adaptation projects have shown that these groups need more support and guidance. Plans are already in place to collaborate with external parties in the city to increase both human and financial resources that are currently lacking. In terms of climate adaptation communication, the municipality is on the right track by employing personal approaches that support their regular methods. While steps have been taken internally to share climate adaptation information with other

colleagues and departments, municipal officials were somewhat critical of the internal communication. This is largely due to the organization's size and different perspectives on sustainability and climate. The municipality's reflective capacity on projects was evident, with successful actions clearly identified. The challenges of these same projects were less discussed but are equally important when implementing the reflective lessons to future projects. Given that the municipality is still in the process of implementing the strategy, evaluating the projects remains challenging. It is important for the municipality to address these challenges and enhance collaborative governance capacities to effectively navigate climate adaptation initiatives and create meaningful collaboration with residents and stakeholders.

Overall, this score provides valuable insights for policymakers and practitioners within the municipality. It highlights the effectiveness of current collaborative practices. The municipality can use this score as a benchmark for evaluating progress and identifying specific areas where targeted actions could elevate their CGC further, leading to more robust, inclusive, and effective climate adaptation outcomes.

Chapter 6

DISCUSSION & CONCLUSION

Chapter 6: Discussion and conclusions

This study sought to understand how the existing collaborative governance (CG) capacities of the municipality of Amsterdam are implemented in policy and practice of the climate adaptation strategy. This chapter discusses the research. In addition, it will discuss the methodological and scientific limitations of this study. Lastly, conclusions and recommendations for further research are made.

6.1. General discussion of results

The discussion of the results will be guided by the sub-questions of this research, First, this paragraph will discuss the way in which the CG capacities shape collaborative processes within the climate adaptation strategy. Hereafter, it will discuss the ways in which the CG capacities both supported and hindered collaborations in the two climate adaptation projects. This research aimed to answer the following research questions:

"In what ways do the collaborative governance capacities, as outlined in the climate adaptation strategy of Amsterdam, contribute to the collaborative outcomes within two climate adaptation projects?"

In addition, this main question will be substantiated by the following sub-questions:

iii. In what ways do the existing collaborative governance capacities shape collaborative processes within the climate adaptation strategy?
iv. How do these capacities support or hinder the collaborations within two projects the 'Onze Straat Actie' project and the 'RESILIO-project'?

6.1.1. Discussion of collaborative governance capacities

This research contributes to existing literature by presenting a framework for analysis of collaborative governance (CG) capacities in the context of the climate adaptation strategy of Amsterdam. It builds upon theories around governance capacities and collaborative governance. The next paragraph reflects on the findings related to the four elements of CG capacities: adaptive inclusivity, integration of communication methods, reflectiveness on past projects and the availability of resources.

6.1.1.1. Adaptive Inclusivity

Regarding the municipality's adaptive inclusivity, this research showed how collaboration processes require context-specific strategies, the presence of human resources such as dedicated personnel from local organizations and connecting with residents' motivation to adapt. As vulnerable groups are hard to reach, the municipal officials recognize the need for a personalized and time-intensive approach. However, while one project has shown that collaborations with local organizations prove crucial

in facilitating lower-threshold participation, internal limitations hinder the municipality's overall inclusive capacity.

This research identified time and financial constraints, as well as the municipality's size, as barriers to collaboration with residents. The significance of this finding is rooted in Adger (2009) and Moser & Ekstrom's (2010) research that barriers, which may vary in each context, can impede climate adaptation efforts. In the context of Amsterdam, these time and financial constraints make it challenging to develop approaches to reach vulnerable groups, as they require more time-intensive strategies. Several municipal officials mentioned how these constraints from higher levels hindered how the personalized approach they want to use. However, the program team's focus on collaborations with external stakeholders through their Amsterdam Rainproof network suggests that additional external human and financial resources can help reducing this barrier, demonstrating the malleability of barriers (Adger et al., 2009) in Amsterdam's context.

Next to these challenges are institutional constraints that can hinder these collaborative processes. This includes the municipality's large size and the diverse preferences of residents regarding climate adaptation measures. Understanding the full scope of activities within the municipality appears to be a difficult task, as indicated by all interviewed municipal officials, owing to the organization's large and complex structure. The municipality's size emphasizes bureaucratic inefficiencies as there are many administrative layers and departments within the municipality that the officials cannot go through. Often, as the end decision is usually based on political commitments, it is hard to change these layers. This again shows the importance of political commitment for climate adaptation.

The following sections highlights how the municipality's current capacity for adaptive inclusivity can be improved through *flexibility in municipal roles and context-specific strategies.*

Context-specific strategies

This research highlighted the importance of context-specific strategies, by showing how knowledge of the local context strengthens collaboration with stakeholders (cf. Klenk et al., 2017). The collaboration between municipality and local organizations seemed to have impacted the success of the Onze Straat project, with the area manager explicitly citing the municipality's organizational role as contributing factor to the success of the project. More specifically, contributing to residents' motivation to adapt seemed crucial for their participation in the two climate adaptation projects. Furthermore, several municipal officials stressed the importance of providing residents with an actionable perspective, aligning with the evolving municipal-citizen

roles (Mees et al., 2017), where the municipality often facilitates climate adaptation initiatives.

From a moral point of view, resilience building means making sure communities are safe, especially those most affected by climate change. Overcoming institutional barriers and promoting collaboration is seen as a moral duty to protect people's rights and well-being. From an altruistic perspective, resilience building is about coming together and supporting each other. Dealing with institutional problems and working collaboratively shows a commitment to values like kindness and social responsibility. Here, it is about work for the common good and helping communities adapt and thrive during tough times. This has become evident in the Onze Straat project, as the municipality's organizing role provided residents, local organizations, and volunteers with an action perspective. As local organizations were also present, it strengthened the work for common good and helping communities, as they were familiar with the residents and neighbourhood.

In this RESILIO project, the discussed institutional challenges become more important. It implies that addressing institutional barriers and fostering collaboration is not only a matter of practical necessity but also aligns with moral and altruistic principles. The interviewed residents within this project expressed more neutrality. They had less interest due to the project's focus on rooftops owned by the housing corporation, rather than their own garden or balcony like in the Onze Straat project which gave them less action perspective. When considering this from moral and altruistic perspectives, it sheds light on the ethical responsibility and selflessness that are needed to enhance urban resilience.

Providing residents with actionable perspectives is an example of effective communication regarding how individuals can assist local governments in climate adaptation efforts (Brink & Wamsler, 2014). Another example is seen in the contrast between residents' negative feedback on the RESILIO project's lack of follow-up due to long communication lines and the deliberate selection of neighborhood-connected volunteers by local organizations in the Onze Straat project to support follow-up efforts. Despite differences, both projects underscore the significance of harnessing neighborhood strengths, such as involving local organizations, to engage with more disadvantaged residents (Mittag, 2008; Keessen et al., 2016).

Flexibility in municipal roles

Overall, a large part of the municipal officials perceives their role as facilitating, activating, and motivating to improve collaborations with external stakeholders, and especially residents. This aligns with Mees' et al. (2017) notion of local governments shifting towards facilitating and networking roles to make informed decisions and create relevant insights that can contribute to a better understanding of climate

adaptation. The flexibility of the municipality translates into the different roles it takes within climate adaptation projects. In the Onze Straat project, the municipality takes on a facilitating and organizing role. While in the RESILIO project they have a connecting role as a 'spider in the web', in which they manage the project to a large extent. These distinctions highlight a deviation which puts contrast on Braunschweiger & Pütz (2021) findings that mainstreaming of strategies for climate adaptation can often be successful, as different approaches are needed based on the context of the project.

Here, I would like to remind the reader about the differences in the context of these projects. A direct comparison between the Onze Straat project and RESILIO project was not possible due to their distinct scales. RESILIO, a large city-wide initiative, extended over multiple years and locations in Amsterdam. This project focused more on the socio-technical aspect of climate adaptation. It embraced a more top-down approach and was supported with 4.8 million euros funding by the *Urban Innovative Actions Program* of the European Union. This research earlier discussed how horizontal integration of European policies is important as local representatives should help in realizing overarching environmental goals (*chapter 1.3.1).* As the final decision of a project is typically determined by higher authorities and involves administrative and political factors, officials often face challenges in incorporating all residents' opinions and needs into the decision-making process. This is because accommodating diverse perspectives demands significant time and effort, resources that are often limited within the municipality. Thus, findings show how difficult it can be to engage local stakeholders when a project is of large size.

Consequently, the higher-level organizational structure made it difficult to compare it to the smaller-scale, local Onze Straat project. The Onze Straat project operated on a street scale within a shorter timeframe of months, representing a local initiative established through collaboration between local organizations and municipality. In this project, the municipality funded the project. Comparing these projects revealed that the neighborhood context and organizational structure significantly impact the collaboration outcomes between the municipality and external stakeholders at the local level, as well as the municipality's role within each project. Furthermore, in the Onze Straat project, local organizations highlighted how residents were encouraged to participate after witnessing the greening of their yards or neighborhoods. Conversely, in the RESILIO project, residents had limited influence on the design or functionality of the blue-green roof, and only those living on the upper floor experienced extreme heat in summers. This underscored the significance of fostering residents' motivation for each climate adaptation project, as a crucial factor for inclusive processes (cf. Glavovic, 2014).

In conclusion, this research underscores the municipality's efforts to engage in collaborative approaches for climate adaptation. It has identified several challenges

that hinder collaboration outcomes, including financial constraints and limitations in human resources. The findings furthermore highlight the importance of context-specific strategies and the need for flexibility in municipal roles to address the complexities of climate adaptation initiatives effectively. However, despite progress, persistent challenges remain, particularly in reaching vulnerable groups, indicating the ongoing need for improvement and adaptation in collaborative approaches.

6.1.1.2. Integration of communication methods

Regarding the municipality's capacity to integrate communication methods, the results shed light on the municipality's communication strategies for climate adaptation, both externally with stakeholders and partners, and internally within the municipal organization. Spanjaard & Water (2017) have previously mentioned how effective integration of communication should require the exchange of information across various scales and departments.

While passive methods remain common in their communication methods, especially in the RESILIO project, there is a shift towards more active and personalized communication strategies in external communication which reflects a deliberate decision to contribute to collaboration. More specifically, the Onze Straat greening project exemplifies the effectiveness of personalized communication methods, where the area manager's personal approach contributed to residents' engagement in the project. These communication interactions between municipality and citizens, more specifically vulnerable residents, are important as climate adaptation initiatives rely on these horizontal interactions next to collaborations (Hallin, 1988; Olofsson, 2001; Enander, 2011).

In the findings regarding the integration of communication methods within the internal municipal organization, it becomes evident that communication about climate adaptation projects and policies primarily flows from the program team Climate Adaptation to other departments within the municipality. This shows that the team is an important link in implementing climate adaptation within the municipality. This research has shown that especially the communication managers of the team play an important role internally as externally in spreading information and creating awareness. However, again, the large organizational structure poses challenges in overseeing all climate adaptation projects effectively. Additionally, incorporating climate adaptation seems difficult due to the fragmented perception and perspectives around climate change and adaptation within the organization. This highlights the need for ongoing efforts to foster collaboration and awareness internally to create mutual understanding and action towards climate measures.

In conclusion, the findings highlight the municipality's efforts to improve communication methods for climate adaptation, both externally and internally. While

there's a shift towards personalized approaches externally, challenges remain in reaching all stakeholders effectively. Internally, knowledge-sharing mechanisms exist, but the organizational size complicates oversight and collaboration. Moreover, varying levels of commitment among officials emphasize the need for ongoing efforts to foster mutual understanding and action. Moving forward, using personalized communication and organizational strategies will be crucial for advancing climate adaptation efforts within the municipality. Lastly, successful collaboration with external stakeholders for climate adaptation requires a holistic approach. This entails personalized approaches, the presence of dedicated personnel from local organizations, and alignment with residents' motivations to adapt.

6.1.1.3. Reflectiveness: adaptation implementation gap

Reflectiveness within the municipality is a key aspect in navigating the organizational complexity of climate adaptation (Naess, 2013). As previously observed in the capacities of inclusivity and integration of communication, the municipality's reflectiveness demonstrates how successful projects incorporated personalized approaches and post-follow-up strategies. Although not yet implemented, several municipal officials emphasize the importance of establishing a feedback loop between policy and practice, advocating for the revision of ineffective policies based on practical experiences.

As the cause of this inefficiency may come from a lack of political prioritisation, it aligns with Kristianssen & Granberg's (2021) identified barriers regarding political commitment to prioritize climate adaptation in Sweden and the scarcity of knowledge of municipal officials about the importance of adaptation as these challenges also hamper Amsterdam's adaptive capacity. In addition, this finding around the lack of political commitment also confirms Runhaar et al.'s (2018) adaptation implementation gap, which is attributed to a lack of sustained political commitment to adaptation mainstreaming at higher levels, and the lack of effective cooperation and coordination between stakeholders (p.1209). The findings of this research confirm this gap, showing that these overarching issues can impact lower-level adaptation projects. Overcoming these barriers is essential for enhancing the municipality's adaptive capacity and its ability to respond effectively to climate-related challenges. This necessitates further research to explore ways to enhance this feedback loop. However, integrating the lessons learned from successful climate adaptation projects in the internal organization still seems challenging as the strategy is still in its implementation phase.

One a more positive side, the municipality's reflectiveness is evident in its transformation from Amsterdam Rainproof to Amsterdam Weatherproof in February 2024, signifying a broader perspective on climate adaptation and a shift towards knowledge exchange and collaboration. Furthermore, the results show that the program team puts efforts in sharing examples with both internal and external

networks and highlights the importance of learning from challenges that arise in partnerships with residents, local organisations, and private companies. Of importance here are the soft policy measures which manifest through attempts of adaptation to local circumstances and contexts and of connecting to the motivation of residents to adapt (Frederiksson et al., 2011) in their external network. Despite the soft measures limited substantive authority, they remain crucial for fostering collaboration with external stakeholders. As the program team already puts in a lot of effort into these soft measures, they are heading into the right direction already. This underscores the necessity of combining soft and hard policy measures (Kasa et al., 2018).

In conclusion, reflectiveness within the municipality is evident in its efforts to personalize approaches and strategies for climate adaptation projects. However, challenges are stemming from the lack of political commitment which flow into lower-level issues such as time and financial constraints as well as the lack of knowledge of municipal officials about the importance of adaptation. Although the program team demonstrated reflectiveness, it remains unclear whether this capacity has been effectively implemented in practice, given the novelty of the climate adaptation strategy. What should be kept in mind is that these institutional barriers need to be overcome if the municipality wants to enhance climate adaptation. Nevertheless, this research suggests that the municipality should consider this aspect moving forward.

6.1.1.4. Resource capacity impacts collaborations

The municipality of Amsterdam faces major challenges in managing financial and human resources for climate adaptation. In previous discussions, it was already mentioned how financial constraints influence the other capacities. Several municipal officials argued this is due to the lower prioritisation of climate adaptation in their organization. Moreover, due to the lack of officials with an expertise in both climate adaptation and knowledge about the neighbourhood or citizen participation, the municipality faces challenges in aligning with residents' need within the limitations of the municipality. It requires a balance between meeting residents' expectations and complying with the institutionalized processes. This could be one of the reasons behind the observed low motivation from stakeholders in the RESILIO project, confirming Kasa et al.'s, (2018) and Kristianssen & Granberg's (2021) observation in which financial constraints and a shortage of appropriate manpower at local level failed to institutionalize local climate policy activities.

To conclude, the complexities regarding financial and human resources underscore the ongoing learning trajectory required for successful climate adaptation implementation in Amsterdam. Once more, this highlights the interconnectedness of the capacities, with each one reinforcing the others. Although these resource constraints can be challenging, they also present opportunities for external, local partnerships and knowledge-sharing efforts to maximize the use of available resources in climate

adaptation initiatives. By addressing these resource challenges, the municipality can strengthen its resource capacity.

Finally, the collaborative governance framework that has been used displays how the presence or absence of the CG capacities results in different collaborative outcomes between the municipality and external stakeholders, depending on the context of the projects. Based on the discussion of the findings, the framework should be adapted to fit the different contexts of studies. This research contributes to shedding light on the practical outcomes and complexities of collaborative governance and its capacities within the novel context of Amsterdam's climate adaptation strategy. Consequently, it adds some contribution to ongoing efforts to establish governance approaches that can help enhance adaptation initiatives in urban areas.

6.2. Collaboration outcomes

As the current CG capacities have been identified, the collaboration outcomes of these capacities needed to be established. To answer the second research question, '*How do these capacities shape the collaborations within two projects the 'Onze Straat Actie' project and the 'RESILIO-project'?*' a summary of the collaboration outcomes is made. These outcomes illustrate the varying collaboration dynamics and impacts within each project, based on the presence or absence of the capacities. Furthermore, it highlights the importance of context-specific approaches and flexible strategies in achieving successful climate adaptation initiatives.

Climate adaptation project	**Collaboration outcomes**
Onze Straat project - Slotervaart	- Personalized approach for reaching residents through close collaboration with local organizations. -The facilitating and organizational role of the municipality collaboration contributed to the perceived success of the project by the area manager of the neighborhood. - Effective utilization of local knowledge and expertise, resulting in the successful implementation of climate adaptation measures tailored to the specific needs of the community. - Improved awareness and understanding of climate adaptation initiatives among residents, contributing to a more resilient and cohesive neighborhood. - Visibility of the area manager in the neighborhood.
RESILIO project - Indische Buurt	- Limited resident engagement and participation due to project scale and focus on top-down approaches, resulting

	in challenges in fostering community ownership and motivation. - Greater reliance on passive communication methods such as resident letters and flyers, leading to reduced community awareness and involvement in climate adaptation efforts. - The large scale of the RESILIO project resulted in less connectivity at the local level. This aligns with integration from EU policy that must consider context-specific challenges.

Table 5: Collaboration outcomes in the selected climate adaptation projects.

6.3. Reflection on methods

Analysing policy documents from Amsterdam's climate adaptation strategy and conducting semi-structured interviews with municipal officials from the strategy's program team provided insight into the four chosen CG capacities. Semi-structured interviews with local organizations and residents provided insight into the ways in which policy ambitions of the Amsterdam municipality are shaped in practice.

To examine the presence of the CG capacities, the adaptive capacity wheel of Gupta (2010) was used. This the added a holistic understanding of the CG capacities of the municipality. As previously mentioned, it was found that the capacities are interconnected and reinforce each other. Using this method meant that the researcher subjectively assigned weights to the capacities based on the interviews with the respondents. The weights of the capacities were not equally assigned as there was more information gathered around the adaptive inclusivity and integration of communication capacities, while less information was clear about the availability of resources for instance. For the outcome of this research, I constructed a Collaborative Governance (CG) capacity wheel. This wheel integrated scores obtained from interviews with municipal officials, local organizations and residents involved in the two climate adaptation projects. This holistic approach was chosen to evaluate the presence of the capacities, recognizing that collaboration approaches are not only shaped by official policies but also by their implementation in real-life contexts.

Lastly, due to the subjectivity of the wheel, the replicability of this research may depend on several factors, including the availability of relevant policy documents and access to key stakeholders for interviews. For instance, if key stakeholders are unwilling or unavailable for interviews, it may be challenging for other researchers to reproduce the study. Additionally, the specific context and nuances of each climate adaptation projects may influence the applicability of the methodology to other settings. Further research should carefully consider the contextual factors.

6.4. Limitations

The following limitations could guide future studies around the exploration of collaborative governance (CG) capacities in climate adaptation.

6.4.1. Successful projects: show ponies of the municipality?

While municipal officials predominantly highlighted successful stories, showcasing pioneering projects and outlining future approaches, a limited number delved into the challenges, which were often rooted in institutional factors. As an example, there was only one municipal official who specifically mentioned the internal challenges. Most municipal officials were quite careful with what they said.

Furthermore, with the exception of one project with low attendance, no municipal officials mentioned unsuccessful projects. The overall findings leaned towards positivity, potentially biasing the results. However, these success stories could serve as a starting point for understanding collaboration with external parties in the city. It is worth noting that without successful projects, the municipality cannot progress. While this research has provided valuable insights into what projects the municipality deems successful, further investigation into unsuccessful projects is warranted.

6.4.2. Further research around residents' experiences

Although my research discusses the positive perspectives of the interviewed residents, more research is needed regarding resident experiences in future studies. The focus on vulnerable residents in both projects led the municipal officials and local organizations to provide guidance on how to cautiously reach this group, particularly regarding the engagement of residents in initiatives like the Onze Straat actie. This cautious approach posed challenges in fully documenting residents' experiences due to concerns about potential conflicts with organizational goals and the delicate nature of resident relationships.

Despite these limitations, the resident interviews provided valuable insights into the projects and their local environments. This research acknowledges that they may not fully capture the diversity of experiences and opinions of all residents engaged in the project. However, as I have interviewed several organizations that were in close contact with the vulnerable residents of the Onze Straat project, it contributed to the trustworthiness of this research. By triangulating residents' perspectives together with the perspectives of local organizations and municipal officials, this research ensured a more comprehensive understanding of the collaboration outcomes. Therefore, a recommendation for future similar projects is to put more emphasis on documenting resident experiences in climate adaptation initiatives to ensure a more comprehensive understanding of community perspectives.

In the RESILIO project, the interviewed residents represented different levels of engagement in the project, offering a range of perspectives on its implementation. However, most interviewed residents perceived their engagement as low due to the lack of motivation and language barrier. It is important to note that this result relies on the experiences of the interviewed residents, and there may be alternative perspectives on the project's execution, particularly given its technical nature and implementation in an area where residents have limited influence.

Lastly, the quotes of this research have been objectively and neutraly viewed at. This means that several quotes do not run smoothly as they are translated literally. This contributes to the confirmability of the research.

6.5. Conclusion and recommendations

Amsterdam, like many urban areas, faces significant risks from climate-related impacts such as flooding and heat stress. Addressing these climate challenges in urban areas necessitates collaborative efforts among diverse stakeholders. Recognizing this urgency, the municipality has developed a Climate Adaptation Strategy (*Klimaatadaptatie Strategie*), in which they emphasize the shared responsibility and need for collaboration in the city to realize climate adaptation measures.

This growing importance of new collaborations between the local government, the community, and public and private actors in Amsterdam's strategy has made it crucial to examine the existing collaborative governance (CG) capacities of the municipality as they act as the starting point for the collaborative outcomes in Amsterdam's practical attempts for climate adaptation. Thus, this research aimed to investigate the capacities by answering the following research question: ***"In what ways do the collaborative governance capacities, as outlined in the climate adaptation strategy of Amsterdam, contribute to the collaborative outcomes within two climate adaptation projects?"***

To properly answer this question, the current CG capacities as well as their collaboration outcomes needed to be established. The foundation for these four capacities came from theory around governance capacities and collaborative governance and were analyzed in the context of Amsterdam through a policy document analysis and semi-structured interviews with municipal officials linked to the climate adaptation strategy, local organizations, and residents. By examining the four CG capacities of *adaptive inclusivity, integration of communication methods, reflectiveness on past projects,* and *the availability of resources*, this research has shed light on how the presence as well as the lack of capacities and their interconnectedness can result in different practical collaboration outcomes. These collaboration outcomes revealed specific impacts in the Onze Straat and RESILIO projects that arise from the

municipality's efforts to use their capacities and collaborate with different stakeholders in these climate adaptation projects.

Consequently, this research provides an initial collaborative governance (CG) framework for future studies to assess the CG capacities of climate adaptation projects. The varying presence of the capacities, their interconnectedness, and their potential to either reinforce or undermine one another, requires the need for ***context-specific strategies*** that consider the context of the target group and its neighbourhood when implementing climate adaptation projects. What remains difficult is achieving a balance between institutional challenges and the needs of external stakeholders.

Furthermore, the reflectiveness and learning within the program team is crucial in navigating the complexity of climate adaptation. In turn, this asks for the ***flexibility in municipal roles***. While municipal officials typically perceive themselves as facilitators and activators within climate adaptation projects, it is essential to adapt these roles based on what the project needs from the municipality. Climate adaptation projects that have been initiated by local organizations have distinct needs compared to projects that are integrated from EU level. This research showed that flexibility is especially crucial for effectively engaging external stakeholders in climate adaptation projects, particularly residents and local organizations.

Accordingly, ***integrating EU policies at the local level*** also necessitates a nuanced understanding of the CG capacities and their implementation within specific projects and contexts. This is particularly relevant given the emphasis on local governance in realizing overarching environmental goals outlined in the EU Green Deal (European Commission, 2023). However, the RESILIO project has shown how this can be difficult for larger projects, emphasizing the need for adaptable and flexible approaches to collaboration on local level. Additionally, the National Environmental Vision (NOVI) and the upcoming Omgevingswet (Environment Act) underscore the pivotal role of municipalities, especially Amsterdam, in climate adaptation (Rijksoverheid, 2023). The emphasis on resident and stakeholder participation within these national and local policies further highlights the collaborative nature of climate adaptation. Thus, achieving climate-adaptation related goals does not only necessitate the alignment with overarching climate adaptation policy frameworks, but also a deeper understanding of local contexts and the engagement with diverse stakeholders within these contexts.

To conclude, this research has found that the municipality is committed to expanding collaborations within their climate adaptation strategy despite the institutional challenges they face.

By heading towards more personalized approaches to involve diverse stakeholders and groups, establishing communication channels among internal and external stakeholders in which they share information and create awareness, putting emphasis on learning from past experiences and best practices, and attempting to collaborate with external parties to ensure adequate allocation of resources, the municipality of Amsterdam attempts to contribute to successful collaboration within the strategy and its projects despite several institutional challenges. Regardless of their efforts, they acknowledge that reaching vulnerable groups remains a challenge, indicating limitations in their current approaches to reaching a broader group of residents. Furthermore, the climate adaptation strategy is still in the policy implementation stage, as the municipality attempts to translate their climate adaptation objectives into concrete actions and initiatives in Amsterdam. However, there is a lack of concrete measures regarding how to implement these lessons into the future. This research demonstrates the crucial role of the collaborative governance capacities in improving collaboration outcomes, which gives the direction for further policy evaluation of the strategy. Implementing these capacities requires a holistic approach, considering their interconnected nature in practice. Therefore, it is recommended that future approaches should **prioritize context-specific, flexible, and reflective practices** to enhance collaboration outcomes in Amsterdam's climate adaptation strategy.

6.5.1. Recommendations

To expand upon this research, the following recommendations for future research are proposed.

Use the expertise of external organizations

The municipality could explore partnerships with external organizations that have their expertise in the neighborhood and in vulnerable groups they are targeting. Engaging in conversations with local organizations has the potential to contribute to the skills and expertise of engaging vulnerable communities within the municipality as well as understanding the needs and preferences of certain vulnerable groups. In addition, it can contribute to additional personnel with knowledge in climate adaptation projects, which the municipality sometimes lacks.

Balancing passive and active communication methods

The municipality should adopt a balanced approach incorporating both passive and active communication methods. While passive methods like flyers and resident letters remain crucial for a broader reach of residents, active strategies such as door-to-door interactions and personalized approaches are essential for engaging residents, especially vulnerable groups. This combination of passive and active methods has potential to strengthen overall communication effectiveness. Furthermore, implementing ongoing evaluation and feedback mechanisms can allow the municipality

to continuously evaluate their communication strategies to better meet the needs of their diverse target groups. Given the challenges posed by the organization's large structure, it may be beneficial to explore technological solutions or communication tools that facilitate information sharing and project oversight. Additionally, targeted training sessions or workshops could be organized to address fragmented perceptions and perspectives around climate change and adaptation within the organization, thereby fostering a more cohesive approach to climate action.

Investing in internally enhancing communication around climate adaptation

Considering the complexity of the municipality's structure, which poses challenges in fully grasping the breadth of climate adaptation activities, a second recommendation is to prioritize initiatives aimed at improving transparency and communication channels across various departments and organizational levels. Implementing regular cross-departmental meetings and sharing successful projects and lessons can help mitigate the complexities associated with the organization's structure, facilitating better coordination and understanding of climate adaptation among stakeholders. Additionally, investing in training programs or workshops focused on improving internal communication and fostering a culture of collaboration can further support efforts to address this challenge.

Institutionalizing feedback mechanisms

The municipality should continue to prioritize and strengthen its reflective capacity in climate adaptation initiatives. This can be achieved by institutionalizing feedback mechanisms (loops) that allow for the revision of ineffective policies based on practical experiences, but also by doing evaluations within their climate adaptation projects. Often, residents and other important stakeholders have insights and knowledge through their experiences that the municipality does not know of. Additionally, efforts should focus on knowledge and project sharing both internally and externally to enhance these feedback mechanisms, for instance on the website of Amsterdam Weatherproof.

Establishing strategic partnerships for additional resources

As a last recommendation, the municipality should explore innovative ways of financing and establish strategic partnerships with external stakeholders to effectively handle budgetary limitations and tight project deadlines. Moreover, these collaborations with partners can enhance the municipality’s human capital by fostering knowledge-sharing on local challenges and needs. This builds a balance between meeting residents’ expectations and following institutional procedures in climate adaptation projects.

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APPENDICES

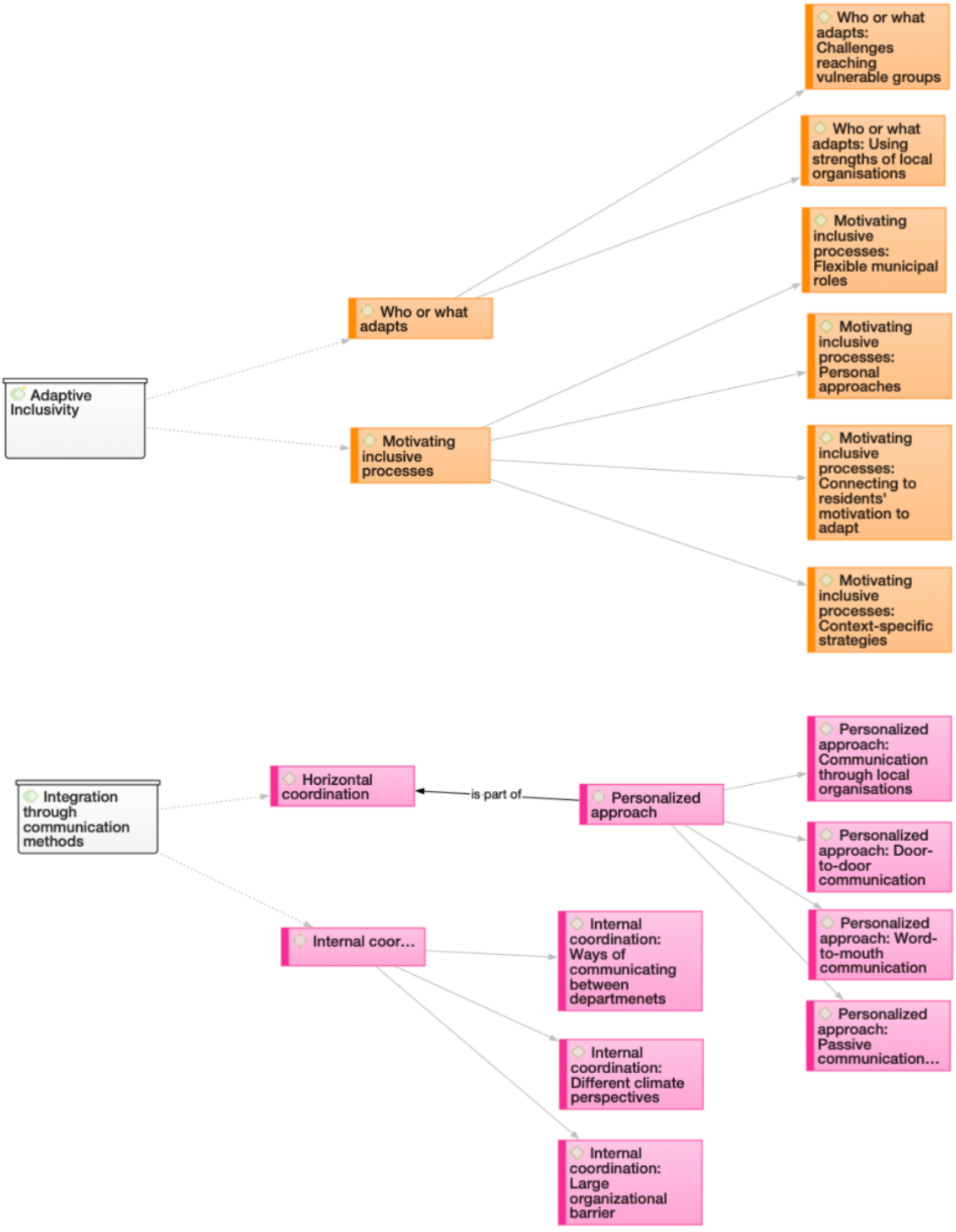
Appendices

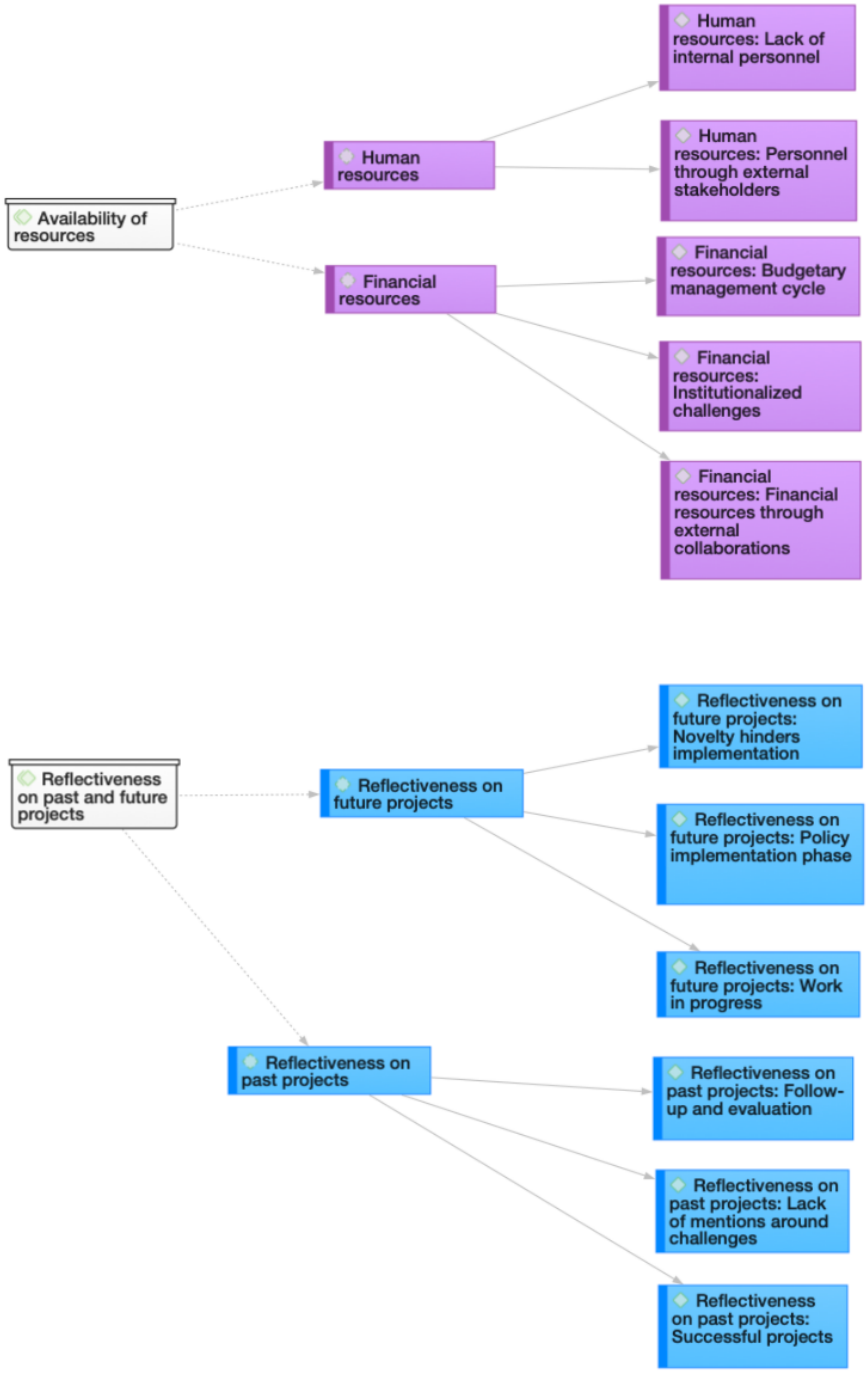
Appendix A: Operationalisation of concepts

Collaborative Governance Capacities			
Dimensions	**Variables**	**Indicators**	**Interview questions**
Adaptive Inclusivity	*Who or what adapts* (Adaptive responsiveness)	*Collaboration with vulnerable groups* *Learning in network approach*	Which stakeholders do you collaborate with within the climate adaptation strategy, especially focusing on vulnerable groups? Who do you want to collaborate with, but are you not yet able to collaborate with, especially regarding vulnerable groups? In which ways does the municipality emphasize the importance of collaboration, especially in relation to engaging vulnerable groups? Can you provide examples of specific approaches aimed at inclusivity in the strategy or projects? Which forms of participation (with residents) are used within the climate adaptation strategy/network approach?
	Motivating inclusive processes	*Approaches for reaching vulnerable groups* *Role of municipality in reaching vulnerable groups* *Local experiential knowledge*	What should the municipality do to strengthen the collaboration with residents, local organisations and professionals? Which approaches do you use to include more vulnerable groups? Can you share examples of successful approaches used to include more vulnerable groups? What where the outcomes? What is the role of residents? What is the role of the municipality in reaching vulnerable groups? In which ways do you incorporate local experiential knowledge in your climate adaptation strategy?
Integration of communication methods	*Horizontal coordination*	*Communication approaches for external stakeholders* *Reflection on past communication methods*	What kind of communication methods are currently being used within the climate adaptation strategy to reach external stakeholders? (residents, local organizations, professionals) Which challenges and opportunities did you identify in the previous communication methods in climate adaptation projects? How did your communication with external stakeholders change in the past years?

	Internal coordination	*Internal communication channels* *Awareness creation within the municipality*	In which ways do you communicate around climate adaptation within the rest of the municipal organization? How do you create awareness around climate adaptation internally? What are the challenges with internally spreading information or awareness around climate adaptation? How does the program team climate adaptation collaborate with other departments?
Reflectiveness of past policy and actions	*Reflectiveness on past policies and projects*	*Reflection on successful collaborations in the past* *Reflection on challenges of past projects*	Which climate adaptation projects do you consider as having successful collaborations and what specific aspects contribute to their success? Reflecting on past projects, what lessons have you learned that you find valuable for future initiatives? What challenges did you face during these projects? How did they shape future actions?
	Reflectiveness on future implications	*Reflection on learned lessons for future use* *Identification of challenges for future implementation*	Which specific lessons from previous projects would you want to use in future projects? What are the challenges of implementing these lessons in projects? How do you plan to address them?
Availability of resources	*Financial resources*	Availability of financial resources of the municipality Availability of financial resources of external stakeholders	Which financial resources are present within the climate adaptation strategy or the two projects?
	Human resources	Availability of human resources of the municipality Availability of human resources of external stakeholders	Who are the key experts involved in the climate adaptation strategy or projects? Particularly in areas such as community collaborations Which human resources are made available by the municipality?

Appendix B: network analysis of codes




Availability of resources
Human resources
Financial resources
Human resources: Lack of internal personnel
Human resources: Personnel through external stakeholders
Financial resources: Budgetary management cycle
Financial resources: Institutionalized challenges
Financial resources: Financial resources through external collaborations
Reflectiveness on past and future projects
Reflectiveness on future projects
Reflectiveness on past projects
Reflectiveness on future projects: Novelty hinders implementation
Reflectiveness on future projects: Policy implementation phase
Reflectiveness on future projects: Work in progress
Reflectiveness on past projects: Follow-up and evaluation
Reflectiveness on past projects: Lack of mentions around challenges
Reflectiveness on past projects: Successful projects

Appendix C: Arguments for weights of the collaborative governance capacities wheel

The scores assigned to different elements and aggregated into dimensions illustrate how collaborative governance manifests in the climate adaptation strategy and the selected projects.

Adaptive Inclusivity
Who or what adapts = There is a slightly low presence since the municipality acknowledged the challenge of reaching out to and involving vulnerable groups in their strategy and projects, citing constraints in financial and temporal resources. (-0,5)

Motivating Inclusive Processes = There is a limited presence of motivating inclusive processes, demonstrated by the incorporation of elements from Glavovic (2014) and Ayers (2021). The municipality has made efforts to adopt a more personal approach within their external network, particularly through their association with Amsterdam Rainproof. Although they recognize and emphasize their facilitating and exemplary role, the strategy lacks explicit details on how they intend to engage with vulnerable groups, though such efforts are frequently mentioned in practical projects during interviews. This suggests that fostering inclusiveness proves more challenging at a higher administrative level, consistent with earlier observations in the literature (Provan & Milward, 2001; Biesbroek et al., 2011; Innes & Booher, 2018). (-1,25)

Overall, there is a slightly low presence of the adaptive inclusivity capacity. This suggests that there may be challenges in ensuring the inclusion of all relevant stakeholders, particularly vulnerable groups. The collaborations in climate adaptation might face obstacles in effectively engaging and incorporating residents, as seen in the RESILIO project. However, successful projects like the Onze Straat project show that a project can successfully reach vulnerable groups. (-0,875)

Integration of communication methods
Horizontal coordination = There is a slightly high presence of horizontal coordination. Several communication strategies were mentioned that would stimulate better collaborations with citizens and local organizations based on previous projects. Multiple officials discussed their insights gained from previous communication approaches, noting their ineffectiveness. Instead, the strategy and implemented projects prioritize a strong emphasis on using personal communication strategies as an extension for the regular communication methods. Given the frequent mention of horizontal coordination in collaboration with key stakeholders, its weight has been doubled. (0,33)

Internal coordination = There is a moderate presence of internal coordination. Although efforts are made internally to inform colleagues and departments around climate adaptation, the size of the municipal organization is still seen as a barrier for good communication between. Although supposedly being assigned the score +1, this internal and institutional challenge hinders the coordination. (0).

Integration of communication methods = The aggregated score tends towards a slightly high presence, emphasizing the significance of horizontal coordination in the climate adaptation strategy. This is attributed to its greater influence on collaboration with other stakeholders. Although internal coordination is challenging due to its large organization, the municipality is progressing in the right direction through meetings, presentations, and showcased exemplary projects. (0,33).

Reflectiveness on past and future

Reflectiveness on past projects = The assessment of past projects was a consistent practice among officials and documented sources. Comprehensive evaluations were conducted, highlighting mostly the strengths of successful projects. These evaluations provided clear insights into the aspects that succeeded and those that encountered challenges. However, the challenges around collaborations were less discussed (0,5).

Reflectiveness on future implications = In what ways the learned lessons from previous projects are supposed to be integrated into future projects was not clear as the municipality is still in the policy implementation phase. However, plans were mentioned to integrate these lessons, creating awareness of the importance of past insights in shaping and managing new climate adaptation projects and strategies. No score is given due to the uncertainty of future implications

Reflectiveness on past and future = As not enough is known to assess the future implications of their reflectiveness, it is chosen to not take this capacity into the assessment (0).

Availability of resources

Human resources =The lack of human resources in the municipality's big organization results in less personal approaches. However, within their external network, their collaboration with residents, local organizations and professionals gives them more human resources to work on a project, enhancing the human resource capacity. TThis dual aspect reflects how the municipality balances between internal constraints and external opportunities. (-0,5).

Financial resources = Municipality wise, the lack of financial resources resulted in less participation and collaboration within municipal greening projects. However, the climate adaptation strategy mostly focuses on collaborations through the external network of Amsterdam Rainproof. Although financial constraints are seen internally, they had a facilitating role in which they subsidize the project and hire other

organizations with expert knowledge in the Onze Straat project, and had subsidies from the EU in the RESILIO project.(-0,75).

Availability of resources = Balanced out by the resources in the external network results in an slightly low presence on aggregated level. No weights have been put as there was no evidence for one of the two being more important as they differ from each other (-0,625).

In general, the CG capacities have a slightly low presence in the climate adaptation strategy. For the overall assessment of the collaborative governance (CG) capacities, the dimensions are weighed evenly. This is because the elements are discussed by the municipal officials to all have an important contribution to the collaborative governance within the climate adaptation strategy. Because they all strengthen or weaken each other. As an example: if the importance of personal communication methods is mentioned, it cannot be reached when there are not enough resources to achieve this. The same goes for the adaptive inclusivity: this cannot be reached when there are no personal communication methods or resources. The absence of one of the elements would result in other outcomes. The weights in the climate adaptation projects may be different as they are more intertwined. (-0,343)