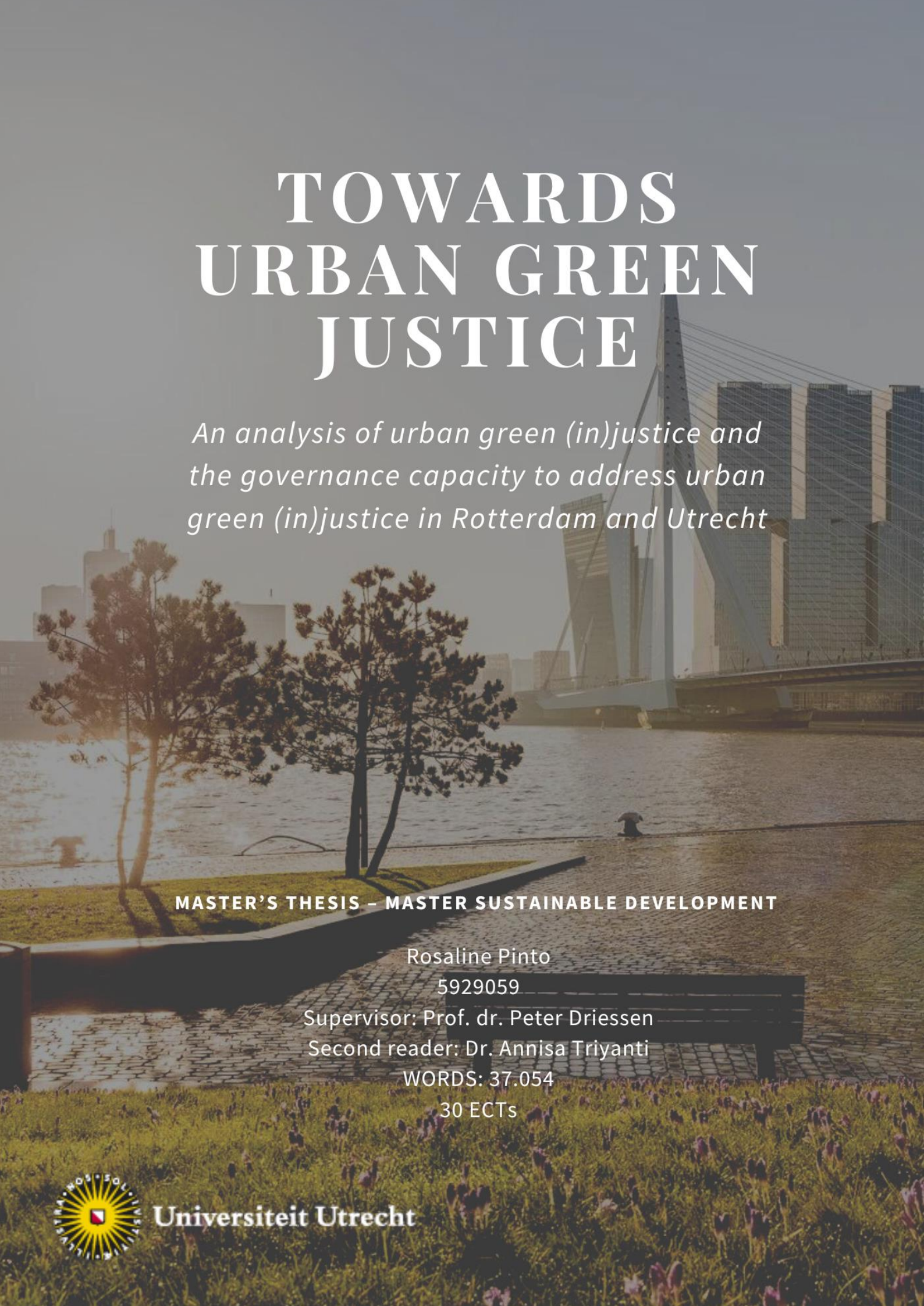

TOWARDS URBAN GREEN JUSTICE

An analysis of urban green (in)justice and the governance capacity to address urban green (in)justice in Rotterdam and Utrecht

MASTER'S THESIS – MASTER SUSTAINABLE DEVELOPMENT

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Abstract

This research focuses on the governance capacity of Rotterdam and Utrecht in addressing urban green (in)justice. With the vulnerability of urban areas to climate change impacts and the increasing need for cities to take action, urban greening is being utilized as a strategy to adapt to climate change. However, recent studies indicate that the benefits of urban greening are unevenly distributed, leading to environmental (in)justice issues. This research employs an embedded multiple case study methodology with the aim to enhance understanding of how urban green (in)justice is assessed and analyze the governance capacity in relation to urban green (in)justice.

Both Rotterdam and Utrecht demonstrate a level of commitment to addressing urban green (in)justice. They acknowledge existing disparities in the quantity and quality of urban green, particularly in older neighborhoods and the city center. Utrecht exhibits a stronger commitment by explicitly recognizing inequality and consistently acknowledging disparities in urban green. Rotterdam, on the other hand, has a broader focus on overall city attractiveness and livability, with no explicit mention of inequality or distributional green injustice in its documents and vision. Furthermore, the findings show that there is a need for more tailored and inclusive approaches to engage residents in decision-making processes. Currently, stakeholders feel that their input is disregarded by authorities, indicating a gap between aspirations for procedural green justice and practical implementation. Additionally, while both cities do not explicitly address recognitional green (in)justice in their policy documents, both do recognize the diversity of the city. However, there is still room for improvement in representing the diversity of neighborhoods in participation processes.

The governance capacity of both cities contributes to addressing environmental (in)justice in urban green initiatives, with Utrecht scoring slightly higher. However, all dimensions of governance capacity (*knowing*, *wanting*, and *enabling)* are equally important for effective change. The increasing awareness of urban green (in)justice as a priority is observed in both cities, particularly in Utrecht.

In conclusion, this research highlights the importance of governance capacity in addressing environmental (in)justice in urban green initiatives. With the expectation of continued climate change and more extreme weather conditions, urban green (in)justice will become increasingly relevant worldwide. The findings provide valuable insights for Rotterdam, Utrecht, and other cities, facilitating the development of more inclusive and equitable approaches to urban greening in the face of climate change challenges.

Preface

This thesis marks the end of my Master studies at Utrecht University. The past few years as a student have sparked my interest in geography and environmental topics. This is why I was eager to write my thesis on urban green (in)justice. This report is the final product of five 21 weeks dedicated research. This research would not have been completed had it not been for the help of many people; to them I owe special thanks. First and foremost, I want to thank my supervisor Peter Driessen for his guidance, expertise, and support throughout the research process. I have valued our feedback sessions, and appreciate the time you have taken to give constructive feedback., which have helped me with the direction and quality of this work. Second, I want to thank my second supervisor, Annisa Triyanti, for taking the time to read and grade my work. I extend my appreciation to my peers who have shared their ideas, insights, and constructive criticism. Next, my sincere thanks go out to my family and friends for their support and encouragements throughout these past months. Last but not least, I would like to express my gratitude to all the participants, organizations, or institutions that provided the necessary data and resources for this research. Their willingness to contribute and collaborate has made this study possible, and I am grateful for their valuable contributions. Finally, I acknowledge that any errors, omissions, or shortcomings in this thesis are solely my responsibility. This work represents a stepping stone in my academic and professional growth, and I am grateful for the opportunities and challenges it has presented.

I hope you enjoy reading my thesis, and hopefully it will inspire many to address urban green injustices.

Rosaline Pinto
Utrecht, July 2023

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1. Introduction

1.1 Urban greening and its challenges

Since 2015, records have been broken for the hottest years in history (Watts et al., 2021) and future projections show that the pattern of warming is not going to change (Manyuchi et al., 2022). Also, the IPCC (2022) states that the evidence of global warming due to human activity is undeniable. These rising global temperatures cause several health-related risks, including mortality and morbidity, especially among vulnerable individuals (Manyuchi et al., 2022).

Specifically, people living in urban areas are vulnerable to the impacts of climate change (Manyuchi et al., 2022; Mees & Driessen, 2011; Nana et al., 2019). Urban areas can be exposed to warmer temperatures of up to four degrees Celsius compared to rural areas due to the so-called Urban Heat Island (UHI) effect (Mees & Driessen, 2011). With this large population vulnerable to climate change and as a key source of greenhouse gas emissions [GHG], cities are at the frontline of global response to climate change and are increasingly required to act against climate change (Frantzeskaki et al., 2019). Therefore, urban greening is more and more being used to help cities adapting to climate change (Threlfall et al., 2022).

Urban greening is defined as the trees and associated vegetation in both public and private urban areas, such as street trees, parks, and backyard gardens (Sax et al., 2020). It is widely recognized that increasing the quantity and quality of urban greening enhances the sustainability and liveability of cities (Mees & Driessen, 2011; Nana et al., 2019; Coffey et al., 2020; Manyuchi et al., 2022). Urban greening reduces stress and anxiety, creates a welcoming and safe environment for community activities, and contributes to intellectual and emotional fulfillment (Coffey et al., 2020; Grant et al., 2022). Ecologically, urban greening plays an essential role in mitigating the impacts of climate change by helping to moderate microclimate temperatures, reduce stormwater runoff, sequester carbon, and promote and conserve biodiversity. Deprived or vulnerable communities, children, elderly, people with mental health problems, and pregnant women seem to be the greatest beneficiaries of urban green space (Kruize et al., 2019; Coffey et al., 2020; Threlfall et al., 2022).

However, urban greening does have some disservices. These include the sheltering of species such as pathogens and parasites harmful to human health, dust pollution, and surface and ground pollution as a result of using herbicides and pesticides (Ignatieva et al., 2020). Furthermore, a greater input of resources is needed (e.g. watering), as well as maintenance and

repairs of damaged urban green areas. In addition, the carbon sequestration can be neglected by GHG generated by the routine management operations of mowing, fertilizing, and irrigating. Moreover, urban greening can be associated with environmental or green gentrification, because the presence of trees and/or parks usually increases neighborhood attractiveness, which in turn leads to higher prices and therefore the crowding out of less affluent households (Anguelovski, 2016; Kruize et al., 2019; Donovan et al., 2021; Grant et al., 2022). The latter raises also concerns, since a part of urban greening is often financed and facilitated by public institutions and should enable access and enjoyment to all citizens (Rutt & Gulsrud, 2016).

In addition, recent studies show that the benefits of urban greening are distributed unequally (Nesbitt et al., 2018; Tozer et al., 2020; Coffey et al., 2022; Threlfall et al., 2022). According to Nesbitt et al. (2018), urban greening is often located in wealthier neighborhoods. Furthermore, the size and abundance of trees on private property are often higher in high-income neighborhoods and there is evidence that lower levels of canopy cover across all land ownership types are more often associated with lower-income and marginalized neighborhoods (Nesbitt et al., 2018).

The uneven distribution of urban greening can also be driven by structural factors (Threlfall et al., 2022). According to Buijs et al. (2016), marginalized and socioeconomically disadvantaged urban residents are less likely to engage in urban vegetation stewardship activities, to participate in urban forestry decision-making, and to control urban vegetation resources. On the other hand, socially and economically advantaged individuals have the capacity to directly and indirectly influence governance arrangements and public decision-making over public and private land, and hence influence the distribution of the benefits of public investment in the urban forest (Threlfall et al., 2022). Inequality in decision-making processes and power relations can be divided into procedural injustice (Friedman et al., 2018) and recognitional injustice (Nesbitt et al., 2018), which can lead to distributional injustice. Distributional injustice occurs where certain groups lack access to an environmental good and/or live in proximity to environmental harm (Schlosberg, 2007). Procedural justice refers to the fair process of decision-making. It concerns whether different stakeholders are fairly involved in the process and whether decisions made are in line with the needs and interests of the community (George & Reed, 2017; Nesbitt et al., 2018; Grant et al., 2022). Recognitional justice refers to the fair recognition of diverse communities. It concerns whether the different needs, values, and experiences of these communities are acknowledged and respected in the development and management of urban green spaces (Rutt & Gulsrud, 2016; Nesbitt et al., 2019; Grant et al., 2022).

1.2 Knowledge gap

Urban greening has positive effects on people's quality of life, health, and wellbeing. However, it is less clear whether these effects are fairly distributed among or to what extent they contribute to social inclusiveness, which requires more in-depth analysis, including qualitative studies (Haase et al., 2017). In research about green infrastructure, distributional justice has frequently been utilized as the key evaluation criterion (Buijs et al. 2016; Wang & Palazzo, 2021). In recent research, the dimensions of procedural and recognitional justice are also considered (Meerow et al., 2019; Langemeyer & Connolly, 2020; Wang & Palazzo, 2021; Zhu & Lo, 2021). This is because researchers have recently called for a greater focus on environmental justice in urban ecosystem services in order to incorporate broader conceptions of justice into a better diagnosis of urban environmental and health inequalities (Calderón-Argelich et al., 2021). However, the dimensions of procedural and recognitional injustice, which are more difficult to assess, are still underrepresented in literature (Rutt & Gulsrud, 2016; Calderón-Argelich et al., 2021).

Scholars of social justice such as Schlosberg (2004) argue that recognizing the underlying social mechanisms contributing to uneven distribution of environmental 'goods' and 'bads' is important. Environmental 'goods' refers to the protection from the currently skewed distribution of environmental 'bads', which include for example air pollution (Hobson, 2004). Furthermore, there is a need to better understand the consequences of privileging one dimension of justice above others in urban green planning (Friedman et al., 2018). Therefore, a better understanding of urban green (in)justice, especially procedural and recognitional green (in)justice, in practice is needed to effectively plan and manage urban greening in cities around the world and to provide benefits for all citizens.

1.3 Research objective and research question

The challenges adapt to the impacts of climate change can be seen as a governance challenge (Hölscher, 2020). Koop et al. (2017) argue that there is no single best approach to overcome these challenges. However, they stress that these challenges are an iterative process that requires governance capacity to find long-term solutions and flexible intermittent targets which can anticipate emerging barriers and changing situations. Governance capacity is defined as "the key set of governance conditions that should be developed to enable change that will be effective in finding dynamic solutions for governance challenges" (Koop et al., 2017, p. 3430). This research analyzes the governance capacity of cities to address

environmental (in)justice by conducting an embedded multiple case study which analyzes urban green initiatives within two Dutch cities. The aim in providing this analysis is to improve the understanding of urban greening governance and to assess the governance capacity in relation to environmental justice. The focus of this study is on public green areas, including parks, trees, and green roofs on public buildings. Private urban areas within housing areas and cemeteries are not included in this research. The following research question will be answered: *To what extent is environmental (in)justice addressed in urban green initiatives in Rotterdam and Utrecht and to what extent does the governance capacity of Rotterdam and Utrecht contribute to addressing environmental (in)justice in urban green initiatives?*

Resulting from this question, five sub-questions have been formulated:

1. How can governance capacity for environmental (in)justice be conceptualized and operationalized?
2. To what extent do the municipalities of Utrecht and Rotterdam address distributional (in)justice, procedural (in)justice, and recognitional (in)justice in urban green initiatives and what factors contribute to this?
3. What is the governance capacity of Rotterdam and Utrecht to address environmental (in)justice in urban green planning and what are the key barriers to, and opportunities for this capacity?
4. To what extent do Rotterdam and Utrecht differ regarding the governance capacity to address environmental (in)justice and how can this be explained?
5. What recommendations can be made to address environmental (in)justice in urban green initiatives?

1.4 Scientific and societal relevance

1.4.1 Scientific relevance

Recent research on environmental justice and ecosystem services have increasingly focused on all three dimensions of environmental justice (Meerow et al., 2019; Langemeyer & Connolly, 2020; Wang & Palazzo, 2021; Zhu & Lo, 2021). However, research specific on urban greening has mainly focused on only the distributional dimensions (Buijs et al., 2016). While distributional justice is crucial, it is also important to recognize the underlying social structures that contribute to unequal distribution. However, the dimensions of recognitional and procedural (in)justice, which are more difficult to assess, are still underrepresented in

literature. Furthermore, there is a lack of literature on the governance capacity for addressing urban green (in)justice. Mees and Driessen (2011), for example, aimed at gaining insight into the governance capacity of cities to adapt to climate change through urban green planning. However, they did not focus on urban green (in)justice. Furthermore, much literature published regarding governance capacity is focused on water governance (Koop et al., 2017). Therefore, this research is scientifically relevant, as it gives new insight into how governance capacity can contribute to urban green (in)justice.

1.4.2 Societal relevance

In addition, recent studies state that the benefits of urban greening are distributed unequally (Nesbitt et al., 2018; Tozer et al., 2020; Coffey et al., 2022; Threlfall et al., 2022). This research will contribute to the knowledge gap of environmental (in)justices in urban green initiatives, which will result in recommendations for a more just system. This eventually will benefit citizens, as they will benefit from more urban greening initiatives. As citizens living in urban areas are more vulnerable to the impacts of climate change (Manyuchi et al., 2022), this is extremely important, even more so with the rising temperatures and the UHI effect (Mees & Driessen, 2011). In addition, there is a growing income disparity in European countries (Rutt & Gulsrud, 2016), and immigration towards European countries, including the Netherlands, is increasing. People with an immigrant background are more prone to experience unemployment and low incomes (Schraad-Tischler, 2015). European cities are popular destinations for refugees. Municipal budgets are currently under pressure from unforeseen social spendings on top of expected financial challenges associated with larger trends of urbanization (Rutt & Gulsrud, 2016). Such circumstances can be expected to exacerbate marginalization in society, including in relation to how public spaces such as urban green spaces are perceived. This requires more research on environmental justice in relation to urban greening. Therefore, this research is also of societal relevance.

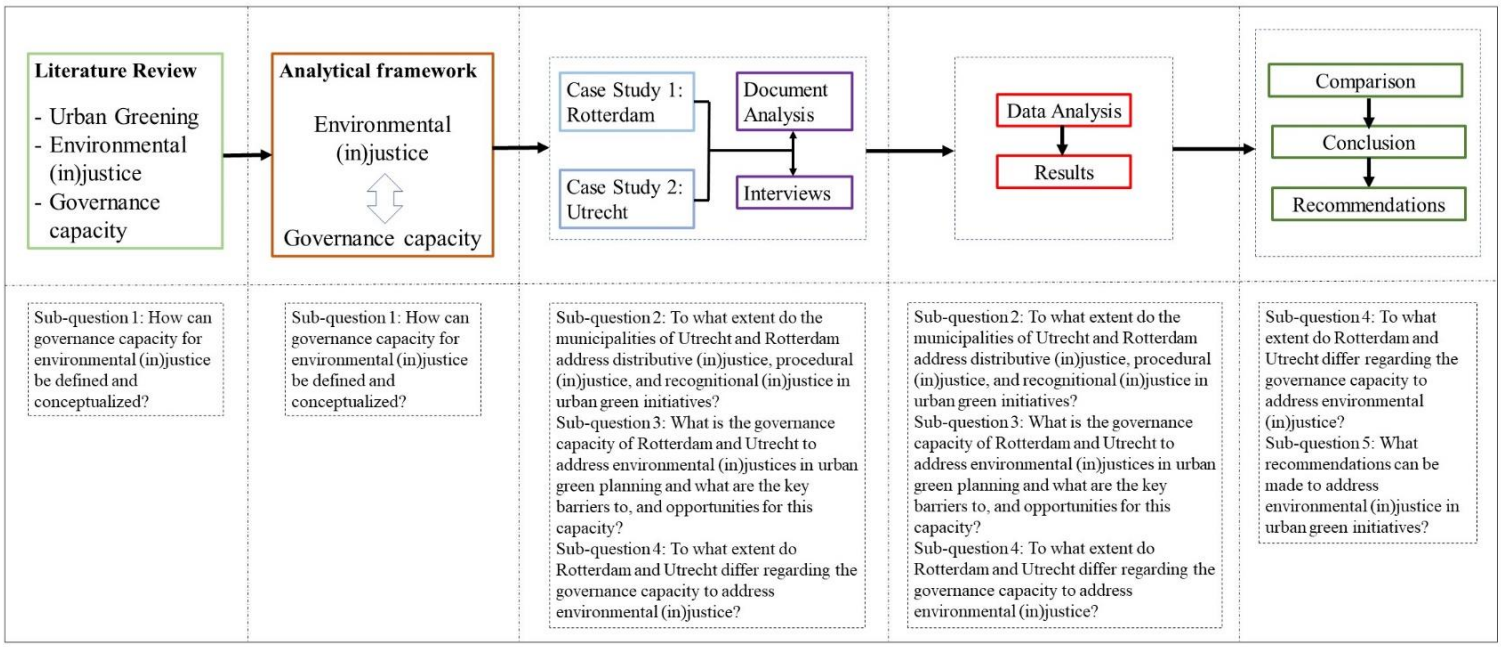
1.5 Research Framework

The research framework is presented schematically in Figure 1. First, a literature review has been conducted, using literature about environmental (in)justice and governance capacity. Then, the operationalization, containing several assessment criteria, has been deduced from the literature review. The implementation of the case studies is followed by a document analysis and interviews with stakeholders involved in urban greening initiatives in two Dutch cities.

With this data, an overview of environmental (in)justice in urban green initiatives has been made, as well as an assessment of the governance capacity of Rotterdam and Utrecht. This provides a better understanding about the local issues and underlying processes, providing recommendations for stakeholders. Then, a comparison was made between Rotterdam and Utrecht in order to develop a deeper empirical understanding of the key enabling governance conditions to address environmental (in)justice and to identify transferable lessons (Koop et al., 2017). Based on the findings of the research, conclusions are drawn, and recommendations are given.

Figure 1.

Research framework



2. Theoretical perspectives and analytical framework

2.1 Perspectives on environmental justice in urban areas

Historically, compared to white and wealthy communities, minority and low-income communities have suffered more environmental harm and gotten less environmental protection (Anguelovski, 2013). For example, in the United States, undesirable local land uses like refineries, landfills, or incinerators have been located in underprivileged Black or Latino areas (Schlosberg, 2007). Similar to this, in parts of Europe like Catalonia, the distribution of polluting industrial sites tends to disproportionately burden lower-income neighborhoods (Anguelovski, 2013). On top of that, deprived urban neighborhoods tend to get the poorest environmental services.

Indeed, recent studies show that the benefits of urban greening are distributed unequally (Nesbitt et al., 2018; Tozer et al., 2020; Coffey et al., 2022; Threlfall et al., 2022). Several scholars provide evidence for the relevance of urban green for human well-being and sustainable development (Jennings et al., 2017; Wüstemann et al. 2017). However, according to Krekel et al. (2016), the effects of exposure to urban green can differ between population groups: urban greening is more often located in wealthier neighborhoods. The provision of urban green is therefore increasingly recognized as an environmental justice issue (Wolch et al., 2014; Wüstemann et al., 2017).

An increasing number of cities around the world have created management plans to manage urban greening effectively (Gibbons & Ryan, 2015). These include localized planning documents that outline among other things short- and long-term urban tree-planting and stewardship goals and include a roadmap for their implementation and monitoring (Ordóñez & Duinker, 2013). In addition, they provide among other things an opportunity for municipalities to address the lack of tree cover within racialized and low-income neighborhoods given their influence as planning documents that govern spaces in cities (Grant et al., 2022).

However, according to Langemeyer and Connolly (2020), only a few urban greening projects consider direct distributional effects in an effort to ensure inclusive ecosystem services outcomes. Yet, for urban environmental managers this is especially relevant as they must specifically operationalize what should be the acceptable amount of canopy and at what minimum distances to canopy residents should have access (Greene et al., 2018). This can be very hard due to differing opinions of the value of urban green spaces. What one group of

residents may see as an environmental good, may be seen by another group of residents as a place of danger, or potential for harm.

In addition, given that interactions with urban greening can promote multiple benefits to health and well-being, their design and structure are critically important for ensuring they both attract users and deliver the greatest benefits (Jennings et al., 2017). Factors of the physical environment like availability, accessibility, scale, connectivity of space, proximity, quality, and maintenance encourage more social interaction (Leslie et al., 2010; Jennings et al., 2017). Increased use is further encouraged by the existence of walking routes, shade, water features, lawns, birdlife, lighting, sporting facilities, and other amenities like playgrounds (Jennings & Bamkole, 2019; Kruize et al., 2019). Tester and Baker (2009) showed the positive effect of renovating urban green spaces. In San Francisco, two parks were renovated in resource-poor neighborhoods. After the renovations, the average number of visitors per observation in both parks across the board increased by more than fourfold.

The relevance of urban green for human well-being and sustainable development of urban areas has led to the development of targets and thresholds for urban green provision at European, national, and subnational levels. According to the European Environment Agency people should be able to access urban greening within 15 minutes of walking or 900-1000 meters (Wüstemann et al., 2017). The Netherlands set the goal of a minimum green provision of 60 m2 per capita within a 500 m radius around households (Roo et al., 2011). Still, not all people are equally capable of using urban green spaces (Kruize et al., 2019). This is due not only to an unequal distribution of urban greening or lower quality of urban greening, but also due to residents being unaware of the presence of green areas or being physically unable to use them. Furthermore, there are inequalities in the usage of urban greening, linked to sociodemographic characteristics, such as income, age, gender, and education, as well as health situation or cultural background. According to Hastings et al. (2006), when public policies fail to address underlying historical discrimination, exclusionary policies, and management practices, limited access to and availability of green space becomes an injustice (Jennings et al., 2017).

Environmental justice in urban greening is in this research understood as “equitable access to and governance of urban forests, mediates urban residents’ ability to derive ecosystem services from urban forests” (Nesbitt et al., 2019). Urban foresters, nonprofit organizations, and academics are increasingly acknowledging the value of inclusive, participatory urban greening management practices (Ordóñez et al., 2020; Butt et al., 2021; Grant et al., 2022). The concept of environmental justice offers a framework for analyzing residents' access to urban

greening and the processes used to implement urban greening (Grant et al., 2022). Environmental (in)justice has three dimensions: distributional, procedural, and recognitional (in)justice, which are explained in the next subsections (Friedman et al., 2018).

2.1.1 Distributional (in)justice

Distributional injustice is the physical manifestation of recognitional and procedural injustices, where certain groups lack access to an environmental good and/or live in proximity to environmental harm (Schlosberg, 2007). Historically, theories about distributional injustice have been focused on how racialized and low-income groups are disproportionately burdened by environmental 'bads' (Grant et al., 2022). Many deprived neighborhoods have higher levels of pollutants, poorer air quality, and higher risks of hazards (Maantay & Maroko, 2009; De Haas et al., 2021). However, more recently these theories have been extended to address unequal access to certain environmental 'goods' or services, including urban greening.

Studies consistently show that deprived areas have lower green space availability than more prosperous areas (Kruize et al., 2019). According to Nesbitt et al. (2018), urban parks and woodlands are more often located in wealthier neighborhoods. In addition, white and wealthier communities tend to have more trees than racialized and low-income neighborhoods (Grant et al., 2022). Also, Greene et al. (2018) found significant evidence that there is a measurable inequality of access to the urban tree canopy based on median household income. This is also confirmed by Schüle et al. (2019) based on their systematic review of quantitative observational studies conducted in the 53 Member States belonging to the WHO European Region and published in peer-reviewed journals (Kruize et al., 2019). Also Li et al. (2015) found that urban greening was positively associated with per capita income, education, and proportion of owner-occupied housing.

Two studies observed that residents in deprived neighborhoods did not have lower access to parks, however, the size of the parks varied with larger parks located in wealthier neighborhoods (Abercrombie et al., 2008; Boone et al., 2009). Indeed, several studies have shown that also the quality of urban green areas is lower in neighborhoods with low socioeconomic status (Jennings et al., 2017; De Haas et al., 2021). This was also found by Grant et al. (2022), who identified that one of the most difficult issues in neighborhoods is the maintenance of urban greening, particularly for low-income residents who cannot afford or otherwise do not have the resources to take care of these problems.

The limited availability and quality of urban greening also lead to poorer health in these neighborhoods (Jennings et al., 2017; De Haas et al., 2021). For example, the unequal

distribution of urban green spaces limits chances for daily exposure to green space, active and passive forms of outdoor recreation, and uses of public parks and trails (e.g. walking and cycling), which can result in health disparities in heat-related illness, obesity, cardiovascular issues, and psychological concerns (Jennings & Gaither, 2015; Jennings et al., 2017). To illustrate, Mitchell and Popham (2008) observed that areas in England with the most coverage of green space had fewer health inequalities related to income for death from circulatory disease and all-cause mortality. Many other scholars including Dadvand et al. (2012), Astell-Burt et al. (2014), Jennings et al. (2017), Kruize et al. (2019), Coffey et al. (2020), and Grant et al. (2022) all reported similar results. Yet, it is crucial to note that, while the availability of urban greening is intrinsically helpful in reducing access inequality, programs that increase exposure to these locations are critical in encouraging their use (Cohen et al., 2013).

Although urban greening strategies have many positive effects on health, the local economy, and well-being, they may also lead to (further) socio-spatial segregation, exclusion, and displacement in cities (Haase et al., 2017). These positive effects are often reflected in rising land and housing prices, which can contribute to gentrification and the exclusion of some residents (Anguelovski, 2013; Kruize et al., 2019; De Haas et al., 2021). Hence, they may advantage those who can afford more expensive houses and apartments whose costs include specific environmental qualities (Krellenberg et al., 2014). Therefore, Kruize et al. (2019) recommend to policymakers to "green" neighborhoods while still creating the opportunity for more disadvantaged groups to continue living there.

Grant et al. (2022) who analyzed Urban Forest Management Plans in the United States for reference to environmental justice, conceptualized the three pillars of environmental justice, including distributional justice, and identified questions to apply to each pillar. For distributional justice, these questions include 'Are trees equitably distributed across city neighborhoods?' and 'Are maintenance practices equitably distributed across city neighborhoods?'.

2.1.2 Procedural (in)justice

The involvement of potential users in the establishment or reorganization of green spaces is important to meet the needs of its users (Van den Berg et al., 2015). A review of nature-based and other interventions found that initiatives that take a participatory approach, in which participants actively contribute to the design of the initiative, seem to be more successful in changing behavior into a healthier and more pro-environmental one, than those that do not (Morris et al., 2012). Yet, vulnerable and marginalized people are less likely to be

effectively represented in decision-making processes (Rutt & Gulsrud, 2016). Procedural justice is focused on addressing a lack of fairness, access, and transparency in decision-making processes that shape distributional outcomes (Walker, 2009).

Procedural justice might be achieved when processes offer recognition to multiple perspectives, allow diverse actors to engage in meaningful participation, and build or enhance capabilities of participating groups (George & Reed, 2017). Recognition will be further discussed in the next section. Participation refers to opportunities to provide meaningful input towards decisions, meaning that the contributions are respected, valued, and considered as the group comes to decisions. Capability refers to the individual or community assets that enable goals to be effectively realized and achieved.

Grant et al. (2022) identified the concepts of 'community engagement/involvement' and 'public education regarding urban trees' as sub-themes of procedural justice. According to Grant et al. (2022), they are known as components of fair and equitable decision-making. Grant et al. (2022) used three questions to identify whether municipalities include procedural justice in their management plans. These questions are the following: (1) Do members of the public have access to accurate information and resources (e.g. related to the benefits/burdens of urban trees, tree care, and maintenance responsibilities, location and time of tree-planting and care events)?, (2) Is there fairness and transparency in urban forest decision-making processes?, and (3) Are engagement strategies for public participation fair and accessible? According to Rutt and Gulsrud (2016), procedural justice would entail examining how personal, cultural, and emotional access in urban greening differs across various users, the nature of access to urban greening decision-making spaces such as who is invited and on what terms, how decisions regarding urban greening are negotiated, accepted and contested over time, and the visions (in terms of various interests and ambitions) embodied in urban greening outcomes.

The few studies in urban forestry that have adopted more of a procedural justice lens suggest the importance of organizing community meetings, stewardship opportunities, and other tree-related events in ways that allow all residents to participate, regardless of socio-economic status, cultural background, language, or schedule (Nesbitt et al., 2018). Such access requires tree-related events to be promoted accurately using jargon-free, accessible language and via various mediums (Grant et al., 2022). According to Grant et al. (2022), this is not only the responsibility of the government or municipalities but also that of non-municipal actors, such as volunteers, residents, NGOs, and schools. Therefore, municipalities should assist and motivate other actors.

2.1.3 Recognitional (in)justice

In the study conducted by Grant et al. (2022), recognitional justice themes were not discussed in the majority of the urban greening management plans that were analyzed in the USA. Only 26% of the analyzed management plans mentioned recognitional justice once or twice. Recognitional justice refers to the fair representation of stakeholders within, and equitable power over decision processes, as well as the representation of local knowledge and experience and the needs of various stakeholder groups (Nesbitt et al., 2019; Zhu & Lo, 2021). Recognitional justice is also closely linked to perceptions, the plurality of needs, as well as multiple types and levels of people's preferences (or values) attached to ecosystem services benefits (Langemeyer & Connolly, 2020). Similarly, Meerow et al. (2019) state that, in the context of resilience planning, recognitional justice entails acknowledging community members' different intersecting identities (e.g. race, gender, class, and age). Besides, it also entails recognizing that these identities are shaped by historical injustices and that it can influence the ability to access resources, and the capacity to participate in decision-making. Recognitional injustices occur when urban foresters either knowingly or unknowingly under-recognize, misrecognize, and/or exclude certain groups within the political process (Schlosberg, 2007).

As an integrative element of justice, recognition has an influence on how distribution and procedures occur (Rutt & Gulsrud, 2016). If a certain group is misrepresented, an unjust choice will be made as a result (Jenkins et al., 2016). Furthermore, a lack of recognitional justice does not only lead to the unjust distribution of costs and benefits, it also causes a decline in people's participation in the decision-making process, which is also an essential condition for environmental justice (Schlosberg, 2004; George & Reed, 2017).

Grant et al. (2022) identified recognitional justice in urban green strategies with the following two questions:

1. Are the perspectives, values, experiences, preferences and/or knowledge of disadvantaged groups (e.g. racialized, queer and trans, disabled, low-income, renters, un/under-housed, those using English as an additional language, un/under documented) and/or neglected groups (i.e. those living in neighborhoods with fewer trees and those traditionally left out of urban forest decision-making) recognized and/or prioritized within urban forest decision-making and/or the planning and/or delivery of tree-planning and/or delivery of tree-planting and tree stewardship events?

2. Do urban foresters give attention to the historical, cultural, and institutional factors that may influence the perspectives, values, experiences, preferences, and/or knowledge held by neglected and disadvantaged groups as they relate to urban trees?

2.2 Perspectives on Governance Capacity

Understanding environmental (in)justice, and including them in planning and management, is a key aspect of informed and contextually relevant urban forest governance (Sax et al., 2020). Therefore, good governance is required as it entails managing long-term, complex, uncertain, and imperfectly known risks that can have large impacts (Koop et al., 2017). Accordingly, governance capacity is required (Koop et al. 2017). Also according to Williams et al. (2020), the impacts of climate change can significantly be decreased by increasing the capacity for climate change adaptation through enhancing governance effectiveness. In addition, Mees & Driessen (2011) assume that the capacity of urban planning is a key precondition for the successful governance of adaptation, and eventually for the effectiveness of green space.

Important to note is that governance capacity is context-dependent (Koop et al., 2017). Actors' interactions are complex, unpredictable, and prone to exogenous social-ecological developments, which is why governance capacity per se does not lead to change, but rather is a precondition or enabler for effective change. In addition, there is much discussion about concrete definitions for governance capacity (Koop et al., 2018). However, a few commonalities can be identified. First, governance capacity, which often includes multiple levels of governance, is related to the ability of actors to address collective problems across organizations (Dang et al., 2016). Second, interactions between actors, which are influenced by social-institutional contexts and allocation of resources, form the governance capacity (Pahl-Wostl, 2009). Third, interactions are shaped by actors' frames of reference, which include their interests, values, and cultures. This influences how well they can work together to solve problems (Koop et al., 2018).

Due to the broad scope of governance capacity, there is also little agreement on which indicators are most valid to assess governance capacity (Koop et al., 2018). In this research, the Governance Capacity Framework (GVC) for cities by Koop et al. (2017) is used in order to provide a deeper, comprehensive, and empirically-based understanding of the most important enabling conditions that determine the governance capacity needed to continuously solve governance change. They identified normative principles from literature, which were

used to select and redefine key conditions for governance capacity and indicators to enable effective change. Three indicators were identified, which are *knowing*, *wanting,* and *enabling*. *Knowing* relates to the need to be fully aware, understand, and learn the actual or possible risks and impacts of actions, policies, and strategic choices. The *wanting* dimension was created because actors need to commit to cooperate, express, and act upon ambitions, and apply their skills and capabilities to find solutions. *Enabling* was identified since actors require a network, resources, and tools to carry out their goals. The resulting framework has nine governance conditions, which each consist of three indicators identified by a literature study conducted by Koop et al. (2017) (*Table 1*). The next section explains these nine conditions as identified by Koop et al. (2017).

Table 1.

The Water Governance Capacity Framework (Koop et al., 2017).

Dimensions	**Conditions**	**Indicators**
Knowing	1. Awareness	1.1 Community knowledge
		1.2 Local sense of urgency
		1.3 Behavioral internalization
	2. Useful knowledge	2.1 Informational availability
		2.2 Information transparency
		2.3 Knowledge cohesion
	3. Continuous learning	3.1 Smart monitoring
		3.2 Evaluation
		3.3 Cross-stakeholder learning
Wanting	4. Stakeholder engagement process	4.1 Stakeholder inclusiveness
		4.2 Protection of core values
		4.3 Progress and variety of options
	5. Management ambition	5.1 Ambitious and realistic management
		5.2 Discourse embedding
		5.3 Management cohesion
	6. Agents of change	6.1 Entrepreneurial agents
		6.2 Collaborative agents
		6.3 Visionary agents

Enabling	7. Multi-level network potential	7.1 Room to maneuver 7.2 Clear division of responsibilities 7.3 Authority
	8. Financial viability	8.1 Affordability 8.2 Consumer willingness to pay 8.3 Financial continuation
	9. Implementing capacity	9.1 Policy instruments 9.2 Statutory compliance 9.3 Preparedness

2.2.1 Condition 1: Awareness

Awareness refers to a better understanding of the causes, consequences, and risks of governance challenges (Raaijmakers et al., 2008). It forms the basis for learning and action (Adger et al., 2009) and is a prerequisite for enabling effective change. Awareness is assessed by Koop et al. (2017) by the indicators '*community knowledge*', '*local sense of urgency'*, and *'behavioral internalization'*. *Community knowledge* is the first step toward achieving conscious behavior and refers to the extent to which various stakeholders possess relevant knowledge about the challenges (Gifford, 2011; Koop et al., 2017). *Local sense of urgency* reflects the perception of the importance of the governance challenge, and whether or not that perception is reflected in actions and policies (O'Connor et al., 1999; Koop et al., 2017). According to *behavioral internalization,* increased knowledge alters actors' problem-framing, goals, values, and perceptions, leading to a shift in their behavior and a stronger commitment to sustainable approaches (Gifford, 2011; Koop et al., 2017).

2.2.2 Condition 2: Useful Knowledge

Knowledge becomes useful when the obtained data is interpreted and analyzed (Zins, 2007). Koop et al. (2017) assess *useful knowledge* through the following three indicators: *'information availability', information transparency'*, and *'knowledge cohesion'*. The availability of reliable knowledge is indicated by *informational availability*. This is important as a lack of knowledge impedes informed decision-making (Van Rijswick et al., 2014). *Information transparency* refers to the effective exchange of knowledge among all concerned

stakeholders. According to Lemos et al. (2012) and Füssel (2007), to avoid misunderstandings and fragmented policies, information needs to be of good quality, reliable, understandable, and accessible for non-experts (Koop et al., 2017). The indicator *knowledge cohesion* refers to how knowledge is consistent among different actors, sectors, and administrative lawyers.

2.2.3 Condition 3: Continuous Learning

Continuous learning is assessed by *'smart monitoring'*, *'evaluation',* and *'cross-stakeholder learning'* (Koop et al., 2017). *Smart monitoring* can be used to identify alarming situations, clarify underlying processes, and predict future developments and is therefore a precondition for learning. For the indicator *evaluation,* Koop et al. (2017) use the theory of triple-loop learning by Pahl-Wostl (2009). Triple-loop learning has three levels, which include single-loop learning, double-loop learning, and triple-loop learning. Single-loop learning is described as incremental learning to improve current management and policy. Double-loop learning is the process of critically examining fundamental linkages and presumptions in order to reframe issues. The underlying norms and values are questioned by triple-loop learning, which can alter the wider social and institutional structure. The *cross-stakeholder learning* indicator, which examines the interaction among actors and their understanding of different perceptions, leads to a more thorough evaluation and is crucial for learning in a public policy context (Emerson et al., 2012). All in all, continuous learning is required in order to adapt to changing situations with many uncertainties, complexities, and unknowns (Folke et al., 2005; Koop et al., 2017).

2.2.4 Condition 4: Stakeholder Engagement Process

Stakeholder engagement may result in a more thorough framing of the problem and widely accepted optimized solutions for all parties concerned (Pahl-Wostl, 2009; Koop et al., 2017). In general, active stakeholder engagement takes more time than unilateral decision-making. However, this can be compensated by time savings in the implementation phase (Koop et al., 2017). Koop et al. (2017) identified *'stakeholder inclusiveness', 'protection of core values',* and *'progress and variety of options'* as indicators for this condition. *Stakeholder inclusiveness* refers to the ability of representatives to speak and make decisions on behalf of all concerned stakeholders in a clear and transparent engagement process (Ford & King, 2015; Koop et al., 2017). *Protection of core values* is essential for creating a safe environment that fosters trust relationships among stakeholders. When stakeholders feel confident that their core values are being respected and protected, they are more likely to engage in cooperative

behavior and work towards shared goals (Pahl-Worstl et al., 2011; Koop et al., 2017). Folke et al. (2005) argue that it is crucial for stakeholders to be actively involved and committed to the process, rather than having predetermined outcomes or making intermediate decisions early on. This is because involving stakeholders in decision-making processes can lead to more effective and equitable solutions that reflect their diverse perspectives and interests. Additionally, stakeholders' contributions should influence the final outcome. Thirdly, to ensure that each stakeholder can benefit from the decision-making process, the third indicator includes *progress and variety of options*. Clear and realistic procedures must be established to achieve this. According to Ridder et al. (2005), stakeholders should co-produce, and at the end of the process, stakeholders should have the opportunity to choose from a variety of options to ensure learning and make more authoritative decisions.

2.2.5 Condition 5: Management Ambition

The extent to which sustainable management and policy are intertwined with historical, cultural, normative, and political contexts is a measure for management ambition. Management ambition is assessed by *'ambitious and realistic management', 'discourse embedding',* and *'management cohesion'.* Regarding *ambitious and realistic goals*, Brown and Farelly (2009) emphasize the importance of long-term goals with intermittent measurable targets, all with adequate resources and adaptable systems to deal with changing events. *Discourse embedding* is an important condition to be successful, because the management goals must align with the dominant values, discourses, and principles (Van Rijswick et al., 2014). The effectiveness of the policy is significantly influenced by how deeply the management goals are embedded in the prevailing discourse (Koop et al., 2017). The degree of integration between organizations, between levels of governance, and between distinct sectoral policies and initiatives is measured by *management cohesion*.

2.2.6 Condition 6: Agents of Change

According to Koop et al. (2017), *agents of change* refer to "the intrinsic motivation of people, their willingness to take risks, and the support given to these efforts to change current approaches" (p. 3433). These agents do not only include people in leading positions, but also other stakeholders. Koop et al (2017) distinguish three types of agents of change, which include *'entrepreneurial agents', 'collaborative agents',* and *'visionary agents'*. *Entrepreneurial agents* are agents who can access resources, find opportunities, and manage risks since they have the right means and skills. *Collaborative agents* are agents with the ability to build

alliances and coalitions between actors. Lastly, *visionary agents* are agents with the ability to steer current policies and actions by envisioning long-term adaptive approaches (Brouwer & Huitema, 2017).

2.2.7 Condition 7: Multi-Level Network Potential

In order to address governance challenges with stakeholders functioning at various levels and with different interests and viewpoints, flexible and dynamic networks are necessary (Pahl-Wostl, 2009; Koop et al., 2017). According to the GVC, *multi-level network potential* consists of the following indicators: *'room to maneuver', 'clear division of responsibilities'*, and *'authority'*. The ability of actors to explore alternative pathways, gain knowledge, and put ideas into action is measured by the *room to maneuver.* As part of this, actors should have the freedom to create new partnerships that can address emerging challenges (Gupta et al. 2010; Folke et al. 2005; Koop et al., 2017). *Clear division of responsibilities* refers to the division of tasks and roles in an accurate and clear manner. Therefore, stakeholders can be held accountable (Mees et al., 2014). The condition *authority* refers to the presence of legitimate forms - such as policy or law - regulations, and policy networks (Van Rijswick et al., 2014).

2.2.8 Condition 8: Financial Viability

Financial viability focuses on the assurance of long-term financial support to address challenges (Koop et al., 2017). This is measured by *'affordability', 'consumer willingness to pay'*, and *'financial continuation'*. *Affordability* focuses on the affordability of climate adaptation services, and focuses on the poor and marginalized groups. *Consumer willingness to pay* examines how costs and risks are viewed by consumers. Trust in (local) authorities is crucial for this, as well as their accountability and sense of urgency (Raaijmakers et al., 2008). Third, *financial continuation* is necessary to address long-term problems and prevent resources from being wasted as a result of poorly coordinated investments (Adger et al., 2005).

2.2.9 Condition 9: Implementing Capacity

Implementing capacity is distinguished by '*policy instruments'*, '*statutory compliance'*, and '*preparedness'*. *Policy instruments* can be used to encourage desired behavior and prevent undesired activities (Mees et al., 2014). To assess and enhance the instrument's effectiveness, ongoing evaluation, monitoring, and modifications are required. An example of such a *policy instrument* is the polluter-pays principle. *Statutory compliance* ensures that stakeholders respect and comprehend agreements, goals, and legislation. This contributes to the

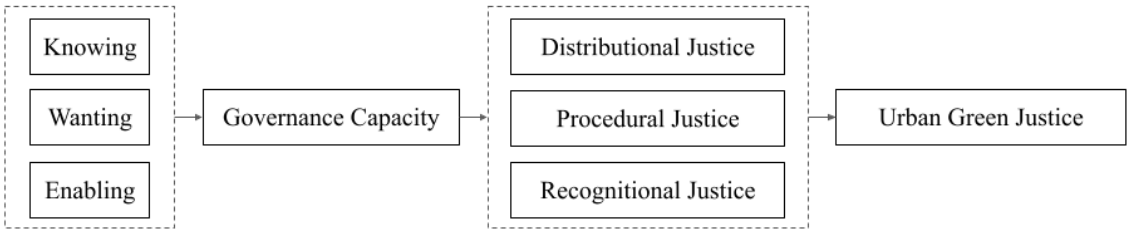
accountability of authorities. The ability for implementation is increased by the third condition: *preparedness.* The existence of action plans, procedures, and scripts supports policy and prepares the city for both gradual and abrupt changes, events, and calamities (Gupta et al., 2010; Raaijmakers et al., 2008; Runhaar et al., 2016; Koop et al., 2017).

2.3 Conceptual Framework

Figure 2 shows the conceptual framework. As mentioned in section 2.2, Koop et al. (2017) identified three conditions that are key for governance capacity, including 'knowing', 'wanting', and 'enabling'. In this research, these conditions are used to assess the governance capacity. As mentioned before, governance capacity is needed to address environmental (in)justice (Koop et al., 2017; Williams et al., 2020). As in this research, the focus is on urban greening, urban green (in)justice is assessed, which consists of distributional, procedural, and recognitional (in)justice (Friedman et al., 2018).

Figure 2.

Conceptual Framework



2.4 Analytical Framework

Figure 3 provides the analytical framework used in this research. This shows the relation between the elements of governance capacity by Koop et al. (2017) and the elements of urban green (in)justice: distributional, procedural, and recognitional green (in)justice.

As mentioned before, governance capacity is required for good governance (Koop et al., 2017). In turn, good governance is required to address urban green (in)justice, which thus requires a sufficient governance capacity. This is also assumed by Mees & Driessen (2011) as explained in section 2.1. In this research, the governance capacity consists of three dimensions, *knowing*, *wanting*, and *enabling*, which are relevant indicators to assess the governance capacity as well as the governance capacity specific for urban green (in)justice. The next

paragraphs explain how each of these dimensions of governance capacity can directly influence urban green (in)justice.

First, as *knowing* relates to the need to be fully aware, understand, and learn the actual or possible risks and impacts of actions, policies, and strategic choices (Koop et al., 2017), it can be said that this affects the extent to which urban green (in)justice is addressed. Awareness is key to identifying and addressing issues related to distributional, procedural, and recognitional green (in)justice. It is important that policymakers and decision-makers have a full understanding of the potential consequences of their choices in order to make informed decisions regarding urban green justice. Therefore, useful knowledge is needed as well. Informed decision-making, including knowledge of all local stakeholders, and highlighting the importance of urban green justice influences how urban green initiatives are addressed. In addition, continuous learning is required in order to adapt to changing situations regarding urban green (in)justice.

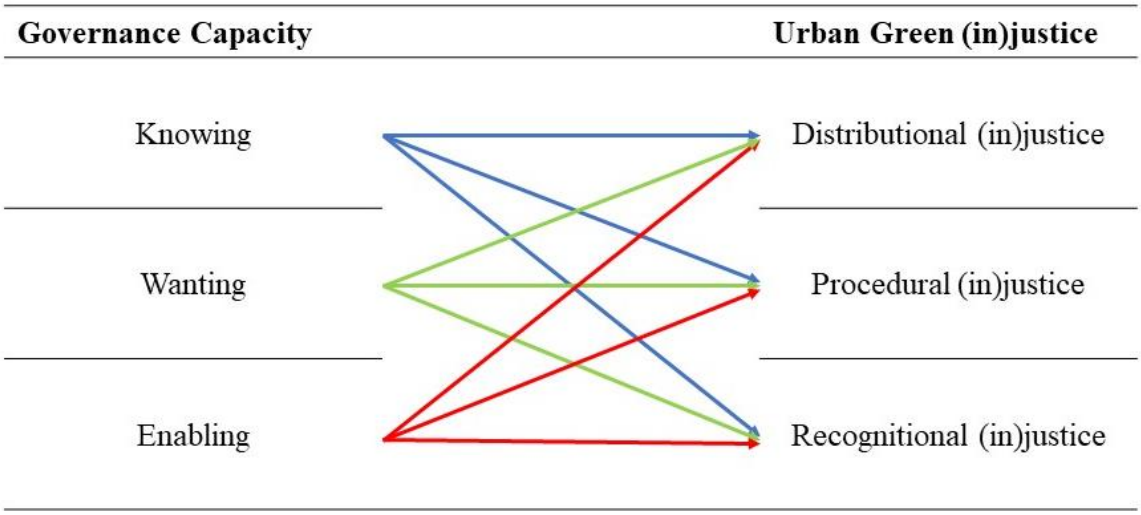
Second, the *wanting* dimension was created because actors need to commit to cooperate, express, and act upon ambitions, and apply their skills and capabilities to find solutions (Koop et al., 2017). Without these collaborations, ambitions and capabilities there is not enough capacity to address urban green (in)justice. To elaborate, stakeholder engagement is closely related to procedural and recognitional green (in)justice. Without the capacity to engage stakeholders, procedural and recognitional justice is not possible as well. Furthermore, stakeholders must express their ambitions and actively work towards these ambitions in order to address urban green (in)justice, which also shows the influence of the governance capacity. Agents of change are needed to influence decision-making regarding urban green (in)justice and effectively push green strategies towards more just strategies.

Lastly, to address urban green (in)justice, networks, resources and tools are needed to carry out goals. Therefore, *enabling* also influences the extent to which urban green (in)justice is addressed. Stakeholders need to have a room to maneuver to adequality address urban green (in)justice. In addition, responsibilities are needed to be formulated and allocated, to also hold stakeholders accountable. Without this clear division, no one can be hold accountable for urban green injustices, which also influences outcomes of urban green initiatives. Next to that, the goals and strategies needs to be carried out, which requires an implementing capacity. Without this capacity, urban green initiatives cannot become realized.

All in all, a relation between governance capacity and urban green (in)justice is found. This section shows that all three governance capacity dimensions can influence all three urban green (in)justice dimensions (Figure 3).

Figure 3.

Analytical Framework.



3. Research Methods

3.1 Research Strategy

This research employed a qualitative embedded multiple-case study approach. A case study was defined as "an in-depth study of a single unit (a relatively bounded phenomenon) where the scholar's aim is to elucidate features of a larger class of similar phenomena" (Gerring, 2004, p. 341). This is an effective research method to investigate and understand complex issues in real-world settings (Harrison et al., 2017). Case study methods allow researchers to understand the how and why of contemporary events, problems, and situations in ways that do not require control over those events or problems (Yin, 2014). As a case study approach thus provides a holistic view, it was the most suitable approach for this research.

The case study approach is useful for both generating and testing of hypotheses. This research used a hypothesis-generating research design. Therefore, this case study research contributed to the process of theory construction rather than the theory itself (Levy, 2008). The aim was to develop more general theoretical propositions, which can be tested through other methods. No clear theory or explanatory and contextual variables were determined yet in literature about the governance capacity for addressing environmental (in)justice. Therefore, a hypothesis-generating research design has been used.

According to Baxter and Jack (2008), the evidence created from a comparative case study is measured as strong and reliable. Another benefit of a comparative case study design is that it creates a more convincing theory when the suggestions are more intensely grounded in several empirical evidence. Therefore, comparative cases allow a wider exploration of theory development (Eisenhardt & Graebner, 2007).

3.2 Case Study Description

As environmental (in)justice can be addressed in municipalities' overall vision as well as in specific projects, an embedded multiple case study will be conducted. Rotterdam and Utrecht provide the location for the case studies. Rotterdam and Utrecht belong to the four biggest cities of the Netherlands. The comparative case study approach can be used to either analyze contrasting results for expected reasons or to analyze similar results in the studies (Yin, 2014). These cities were selected because of several commonalities, providing a 'most similar' design. Furthermore, within each of these cities, green initiatives in two neighborhoods were researched, which are also discussed in this section.

The cities that are chosen have already started to implement green adaptation measures. For example, Rotterdam belongs to the C40 Cities Climate Leadership Group, a transnational network headed by the Mayor of Toronto. Additionally, Rotterdam is often seen as a frontrunner in climate adaptation strategies (Kooyman, 2021). Therefore, a governance capacity assessment of this city provides valuable insight into which governance conditions are most needed. Rotterdam wants to invest in twenty hectares of additional green space in the city, which is stated in the action plan 'Rotterdam gaat voor groen' [Rotterdam goes green] (Gemeente Rotterdam, 2020). The city wants more green roofs, and more greenery at workplaces, business parks, and in the port area.

The second city that was assessed in this research is Utrecht. The municipality of Utrecht wants to keep the green spaces in the city accessible for everyone and improve their quality. Large green areas and important green connections the municipality wants to further develop, improve and protect. These plans are among other things defined in 'Groenstructuurplan Utrecht' [Utrecht green structure plan], and 'Actualisatie groenstructuurplan Utrecht 2017-2030' [Utrecht green structure plan update 2017-2030] (Gemeente Utrecht, n.d.).

Of the four largest municipalities in the Netherlands, Rotterdam and Utrecht have proportionally fewer petrified neighborhoods than The Hague and Amsterdam. However, there is still a shortage of green space in the city (Natuur & Milieu, 2022). Both cities only score a D+ on the Husqvarna Urban Green Space Index (on a scale from A (best ranking) to E (worst ranking)) (HUGSI, n.d.) – an organization which quantifies the greenness of global cities.

3.3 Operationalization of Variables

Appendix A presents the indicators to operationalize the various justice principles and governance capacity dimensions derived from the literature.

For the variable 'urban green (in)justice', literature is used to find indicators and measures. In order to identify whether urban green justice was assessed and taken into account in urban green initiatives, the three indicators (distributional, procedural, and recognitional (in)justice) are used as predefined codes. In this case, the measures that are identified are used to help identify these three indicators. In addition, Grant et al. (2022) conceptualized the three pillars of environmental justice. Those conceptualizations consist of predefined questions, which are also used to identify urban green (in)justice in urban green initiatives.

To assess the governance capacity of Rotterdam and Utrecht, the GCF of Koop et al. (2017) has been used. However, in literature, the GCF is mostly used to address identified urban water challenges. Therefore, this GCF framework is adjusted and only relevant indicators of governance capacity for urban green (in)justice are analyzed. Therefore, the indicator *financial viability* has been changed to *financial resources*, since this research focuses on public green areas. Since citizens do not have to pay to access these areas, the previous indicator has not been relevant. However, addressing urban green (in)justice still requires economic resources, which is why *financial resources* is included in this research. This condition has been placed under implementing capacity. In addition, the condition *preparedness* has been left out, since urban green (in)justice does not have to deal with uncertain events like flooding. Furthermore, the indicators of *agents of change* are analyzed as one indicator, as they are similar and also closely connected with respect to stakeholder engagement processes, procedural and recognitional green (in)justice.

This analysis requires a certain degree of interpretation. As a researcher, it is important to be aware that this interpretation is partly subjective, because of opinions, standards, and values (Verschuren & Doorewaard, 2010). Therefore, pre-defined questions are drafted to operationalize the indicators identified by Koop et al. (2017). These questions are also based on research by Mees and Driessen (2011), Madonsela et al. (2019), and Ddiba et al. (2020), who made similar predefined questions based on the GCF.

3.4 Data Collection

Data collected for this research is retrieved from three different sources. First, academic literature is used to enhance the understanding of the current scientific knowledge on environmental (in)justice in urban greening and governance capacity. This has been used to answer sub-questions 1. Several databases are used to search for the literature, including Google Scholar and Scopus.

Second, gray literature is used, consisting of municipal documents of Rotterdam and Utrecht and websites of organizations involved in the urban green initiatives. This will be used to answer sub-questions 2 and 3. Appendix B provides an overview of the documents that have been assessed.

Third, data is collected through in-depth interviews with relevant stakeholders. The interviews are used to further analyze the governance capacity and to assess these in terms of their justness. The sample consists of sixteen interviews, of which seven respondents are

working on urban green projects in Rotterdam, five respondents are working on urban green projects in Utrecht and four respondents are working on several different urban green projects, but not specifically in Rotterdam or Utrecht. The sample consists of policymakers and decisionmakers active in urban green initiatives, experts, advisors and civil organizations active in neighborhoods (such as community teams) (Table 2). Important to note is that the respondents made personal statements. Therefore, the statements that are collected in this research cannot be viewed as statements from the organizations themselves. Still, the respondents are seen as experts regarding urban green. In addition, the respondents are working at the organizations and all have an understanding about the practices of the organization.

The interviews held were semi-structured, as this allows for enough space for the participants to elaborate on the subjects themselves. Beforehand, consent is asked from the respondents about the level of anonymity, recording of the interview, analyzing the transcripts in the software Nvivo, the storage of data, and the processing and sharing of the data. In addition, the opportunity is provided to the respondents to read the transcript and revise any inaccurately formulated texts. It has been made clear to respondents that interpretations and/or conclusions are the responsibility of the researcher.

The interview questions were structured along the indicators presented in the analytical framework. The interview guide is provided in Appendix C (Dutch) and Appendix D (English). Respondents were recruited through purposive sampling, which entails that they are selected due to their affiliation with the topic at hand (Boeije, 2010). The data is used to answer sub-questions 2 till 5.

Table 2.

Conducted interviews.

Respondent code	Organization	Function	Date
R1	Municipality of Utrecht	Project Secretary Green (Utrecht)	25-04-2023
R2	Hoogheemraadschap van Schieland en de Krimpenerwaard	Area Advisor (Rotterdam)	12-05-2023
R3	Tuinwijzer Wagenborg	Initiator (Utrecht)	
R4	Sweco	Spatial development consultant and urban green (General)	16-05-2023
R5	Municipality of Utrecht	Senior (Policy) Advisor/ Project Leader Healthy Environment (Utrecht)	17-05-2023

R6	Tussentuin	Architect (Rotterdam)	23-05-2023
R7	Utrecht Natuurlijk	Program Manager, Advisor West & Southwest (Utrecht)	23-05-2023
R8	BPD Ontwikkeling B.V.	Environmental and environmental quality consultant (General)	24-05-2023
R9	BPD Ontwikkeling B.V.	Manager of environment and environmental quality (General)	24-05-2023
R10	Anonymus	Anonymous	26-05-2023
R11	Vreewijk Coöperatie	Board (Rotterdam)	31-05-2023
R12	Municipality of Rotterdam	Consultant at City Management (Rotterdam)	01-06-2023
R13	Buurtklimaatje	Urban psychologist (Rotterdam)	07-06-2023
R14	Buurtklimaatje	Initiator (Rotterdam)	07-06-2023
R15	Sweco	Expert Urban Green (General)	06-06-2023
R16	Heijmans	Director (Utrecht)	09-06-2023

3.5 Data Analysis

The software NVivo20 is used for the data analysis. The interviews were transcribed, after which they are coded. The policy documents were directly uploaded in the program. The codes are based on the operationalization presented in Appendix A and is performed deductively. Deductive coding is a top-down approach where you start with a set of predetermined codes and then find excerpts that fit those codes. These codes consist of codes about distributional (in)justice, procedural (in)justice, recognitional (in)justice and indicators for governance capacity. The codes are presented in Appendix A in column ‘Indicators’. The measures and predefined questions in the table are guidelines for these predefined codes.

Furthermore, Koop et al. (2017) uses a scoring system to assess the governance capacity. However, since the scope of this research is limited, and not all stakeholders and their perceptions could be interviewed, it is decided to provide mainly a qualitative assessment of the governance capacity. This way, wrongly quantitative conclusions are avoided. However, to make a clear overview of the governance capacity, a simple indicator system was used. The performance of the governance capacity was scored as *sufficient* (green), *needs improvement* (orange), or *poor* (red). Based on the information gathered, an interpretation by the researcher was made. In addition, for each governance capacity indicator, the results describe why this indication has been appointed. The GCF assessment was done through two steps: (1) an analysis of policy documents, and (2) an analysis based on qualitative semi-structured interviews with experts to obtain additional details.

3.6 Reliability and validity

Case study research is often criticized for its inability to support generalization and thus considered to provide limited validity and value as a research design (Harrison et al., 2017). However, validity, which consists of internal validity - has the researcher really measured the effect they intended to measure? - and external validity - which describes the extent to which a study can be generalized (Van Thiel, 2014) - can be aimed by recognizing that multiple realities exist (Noble & Smith, 2015). In this research, an interpretivist approach is used, which acknowledges that "real" reality is only imperfectly and probabilistically apprehendable (Van Thiel, 2014). By reflecting on personal biases and ensuring the representativeness of the findings in relation to the phenomena, validity is achieved.

The reliability of a study is a function of the accuracy, and the consistency with which variables are measured (Van Thiel, 2014). By capturing the variable to be measured as correctly and precisely as possible (Van Thiel, 2014), the reliability will be achieved. Moreover, this research makes use of more than one method (observations, document analysis and interviews), with the aim of double checking on the data collection and research results. This triangulation enhances the reliability and validity of the research (Van Thiel, 2014).

4. Results Rotterdam

Chapter 4 presents the results of Rotterdam. First, an examination of how distributional, procedural, and recognitional injustices are addressed is provided. The objective is to provide a comprehensive overview of the approaches taken to address these forms of injustice and answer sub-question 2. Additionally, an assessment of the governance capacity is presented, addressing sub-question 3.

4.1 Urban Green (In)justice

One of the main objectives of Rotterdam is to be a livable and vibrant city Given the city's challenges concerning water and climate change, there is a pressing need for Rotterdam to enhance its climate resilience. Consequently, Rotterdam has implemented various climate adaptation measures, including the promotion of urban green spaces. In its urban vision for 2030 (*'Stadsvisie Rotterdam 2030'*, 2007), Rotterdam highlights its status as a green city with 41 m2 of green space per population, which is more than the other three major cities Amsterdam (33), Utrecht (33), and The Hague (30). Despite this achievement, Rotterdam continues to employ multiple climate adaptation strategies. Notably, the city has adopted a green strategy named *'Rotterdam gaat voor groen'*, which aimed to increase the city's green area by 20 hectares—a goal that has been successfully accomplished.

4.1.1 Distributional Green (In)justice

Overall, Rotterdam recognizes the unequal distribution of urban green among neighborhoods. The documents of Rotterdam's Weerwoord specifically focuses on distributional green (in)justice. These documents present comprehensive data on environmental quality, socio-economic indicators, health, and urban green spaces. This data-driven approach assists in identifying areas that require actions. For example, the document *'Programma kader Rotterdams Weerwoord'* includes maps that illustrate various aspects such as resident initiatives, areas with significant distances to cooler locations within the city, and the extent of pavement in each neighborhood (Figure 4). This Figure clearly illustrates the disparities between neighborhoods, with downtown having over 90% pavement coverage. At the outskirts, neighborhoods become less paved. However, this information alone does not provide concrete details about the distribution of pavement or the amount of green space within each neighborhood. Nonetheless, it does offer an indication of the differences between neighborhoods and highlights the availability of data. Additionally, neighborhood maps are

also available, showing the facilities and composition of each neighborhood. However, these do not focus on urban green.

Figure 4.

Pavement by neighborhood (Programma kader Rotterdams Weerwoord, n.d.).

The urban vision (*'Stadsvisie Rotterdam 2030'*, 2007) concurs with Rotterdams Weerwoord, highlighting that the quality of the public space, particularly in the city center, is perceived to be lower compared to other cities. In addition, the document highlights that while Rotterdam is considered a green city within its city limits, it is not perceived this way by everyone. It emphasizes that although there are some areas of high-quality green spaces, the overall quality of remaining green areas lags behind. The urban vision also highlights the uneven distribution of urban green, with certain neighborhoods facing a shortage. This demonstrates an awareness of distributional green injustice. The former is also highlighted by respondent R13. The respondent believes that Rotterdam has in general relatively little green space, with only a few large parks. Significant paved areas are prevalent between these parks and throughout neighborhoods like Carnisse, resulting in a lack of greenery. Although Carnisse benefits from its proximity to the Zuiderpark, making it a relatively green neighborhood, but looking closer, there is minimal greenery within the neighborhood itself.

The lack of urban green and the prevalence of paved surfaces in some neighborhoods contribute to the Urban Heat Island effect in those areas. This phenomenon is documented in document such as the *'Rotterdamse Adaptatiestrategie'* (2013) and *'De Groenblauwe*

Groeidiamant' (2019). According to these documents, the Urban Heat Island effect is particularly noticeable in Rotterdam's city center and 19th-century neighborhoods, characterized by a significant amount of pavement and limited water and green spaces. The Health Policy (‘*Nota Gezondheidsbeleid 2016-2019*’, 2016) also demonstrates awareness of health disparities across neighborhoods. While not specifically related to green spaces, it does indicate that Rotterdam acknowledges the differences between neighborhoods.

Several respondents, including R2, R6, R11, R13, R14, and R15, highlight the unequal distribution of urban green spaces within Rotterdam. Respondent R14, for instance, acknowledges the disparities in both the quantity and quality of urban green spaces across neighborhoods. The respondent notes that the city center receives more attention and maintenance from the municipality, resulting in higher-quality green spaces. On the other hand, neighborhoods like Carnisse receive less attention and maintenance, leading to a noticeable difference in the quality and quantity of urban green spaces in those areas.

According to respondent R2, neighborhoods with significant challenges in Rotterdam often correspond to densely built-up areas with a high proportion of paved surfaces, such as Rotterdam Centrum, Oude Noorden, Overschie, and Delfshaven. In these areas, the presence of underground cables and pipelines limits the available space for planting trees. The respondent further notes that these challenges tend to be more prevalent in disadvantaged neighborhoods characterized by smaller houses and narrow streets. This correlation underscores the relationship between limited green space and socio-economic disparities. Moreover, respondent R6 emphasizes that in neighborhoods facing various pressing issues, residents tend to have paved gardens that are poorly maintained. The respondent attributes this to various reasons, including limited resources and a perception that the neighborhood's appearance is normal. Notable disparities in green spaces between neighborhoods are pointed out by the respondent, suggesting a connection between discrepancies in green space distribution and socio-economic factors.

These results suggest that the city of Rotterdam is aware of the differences of urban green between neighborhoods. The documents and respondents also show that Rotterdam acts upon this knowledge. Rotterdams Weerwoord for example suggests that additional investments should be made in neighborhoods facing significant climate challenges, characterized by limited private green spaces and a high proportion of low-income households and private rentals. Document ‘*Programma kader Rotterdams Weerwoord*’ states the following:

"Climate adaptation is not an optional luxury, but a fundamental requirement to keep Rotterdam liveable and safe in the face of climate change."

Document Programma kader Rotterdams Weerwoord, p. 19

This shows that Rotterdam is taking steps to address distributional green injustice. In addition, documents '*Rotterdam gaat voor groen 2018-2022'* and '*Stadsvisie Rotterdam 2030'* outline Rotterdam's active efforts to introduce new green spaces throughout the city, including in neighborhoods with limited existing greenery. By successfully achieving their goal of adding 20 hectares of green space, the Rotterdam City Council is already committed to realizing the quantitative greening of the city. Additionally, the municipality has implemented smaller initiatives like the Tegeltaxi service (Tile cab service), which aims to assist residents in greening their surroundings by providing a convenient way to remove tiles from gardens or facades. While residents remove the tiles themselves, the municipality offers a pickup service to facilitate the process, especially for those unable to handle heavy lifting or transport the tiles to disposal sites. This program by the municipality is not specifically focused on reducing disparities, but still contributes to greening the city and offering residents opportunities to green.

Furthermore, respondent R12 highlights the existence of programs at the municipality that address inequality, such as ICAR (Inclusive Climate Action Rotterdam). While the respondent notes the absence of specific programs solely focusing on inequality in green spaces, there are programs that tackle inequality within the broader context of climate change, recognizing the role of green spaces in mitigating its effects. Moreover, there is a neighborhood-based approach under the initiative Rotterdams Weerwoord, where collaboration takes place between colleagues of the respondent and ICAR to identify specific neighborhoods that require additional attention in relation to climate change. As a result, specific funding is allocated to address the needs of these designated neighborhoods, including the neighborhoods Carnisse and Vreewijk. Additionally, smaller organizations such as Vreewijk Coöperatie, Buurtklimaatje, and Tussentuin actively contribute to addressing distributional green injustice by locally incorporating green spaces within neighborhoods.

However, it is important to note that not all policy documents specifically address distributional green injustice, and not all respondents express positive views about how the municipality addresses this issue. For instance, the urban vision document *'Stadsvisie Rotterdam 2030'* does not explicitly prioritize the inequality of green spaces. While it acknowledges some unequal perceptions of urban green, its main focus is on highlighting

Rotterdam as a green city and improving the overall living environment for all residents. The document does not specifically mention green spaces as a strategy for creating an attractive residential city. Moreover, the urban vision mentions limited funding available for investment, resulting in the selection of thirteen VIP areas for enhancement. These areas are chosen based on their contribution to Rotterdam's economic structure and their potential to make the city more attractive to residents. However, these VIP areas are not disadvantaged neighborhoods particularly. Similarly, the green strategy document *('Rotterdam gaat voor groen 2018-2022', 2022)* does not discuss the equitable distribution of green spaces. Its focus is primarily on adding new green spaces throughout the city. Furthermore, the document *'Rotterdamse klimaataanpak'* (2019) does not address green injustice at all.

Additionally, respondent R14 mentions that there no significant agenda for greening initiatives from the municipality. According to the respondent, the municipality's focus primarily revolves around the maintenance of existing green spaces. When it comes to new projects, there might be some consideration given to incorporating additional green elements. However, the municipality does not actively pursue green opportunities such as expanding tree pits, promoting biodiversity, or implementing green facades. Instead, they rely on initiatives from residents and organizations like theirs.

Furthermore, several respondents draw attention to the lack of support and prioritization from the municipality when it comes to addressing distributional green injustice. Respondent R11, for example, mentions their participation in the Ride to Challenge (R2C) program, which aims to empower neighborhoods and communities to take action in improving their environment. The respondent had plans to enhance the greenery in their neighborhood by creating flower arrangements, planting fruit trees, and maintaining green areas. However, the respondent expresses frustration that the municipality is more inclined to support large-scale projects at the provincial level rather than investing in local initiatives.

> *"So the money for that that only works well for a very large party so working at the provincial level actually. Because if you work at the urban or district level... then you don't stand much of a chance with the municipality. Because then you're too expensive for them. And they don't care if you do a lot of good things locally."*
>
> Respondent R11 - Vreewijk Coöperatie

All in all, the analysis reveals that Rotterdam acknowledges the issue of unequal distribution of urban green spaces and has taken some measures to address distributional green

injustice. Initiatives like Rotterdams Weerwoord and Right to Challenge demonstrate the city's recognition of the problem and their efforts to tackle it. However, the data indicates that distributional green injustice is not a high priority for the municipality. The available information does not clearly outline how the city is specifically addressing this issue, and there is limited focus on the accessibility of urban green spaces. The emphasis appears to be more on creating liveable neighborhoods rather than ensuring equitable distribution of green spaces. Therefore, while Rotterdam is taking steps to address distributional green injustice, there is still room for improvement in terms of prioritization, support for local initiatives, and adopting a more comprehensive approach to tackle this issue effectively.

4.1.2 Procedural Green (In)justice

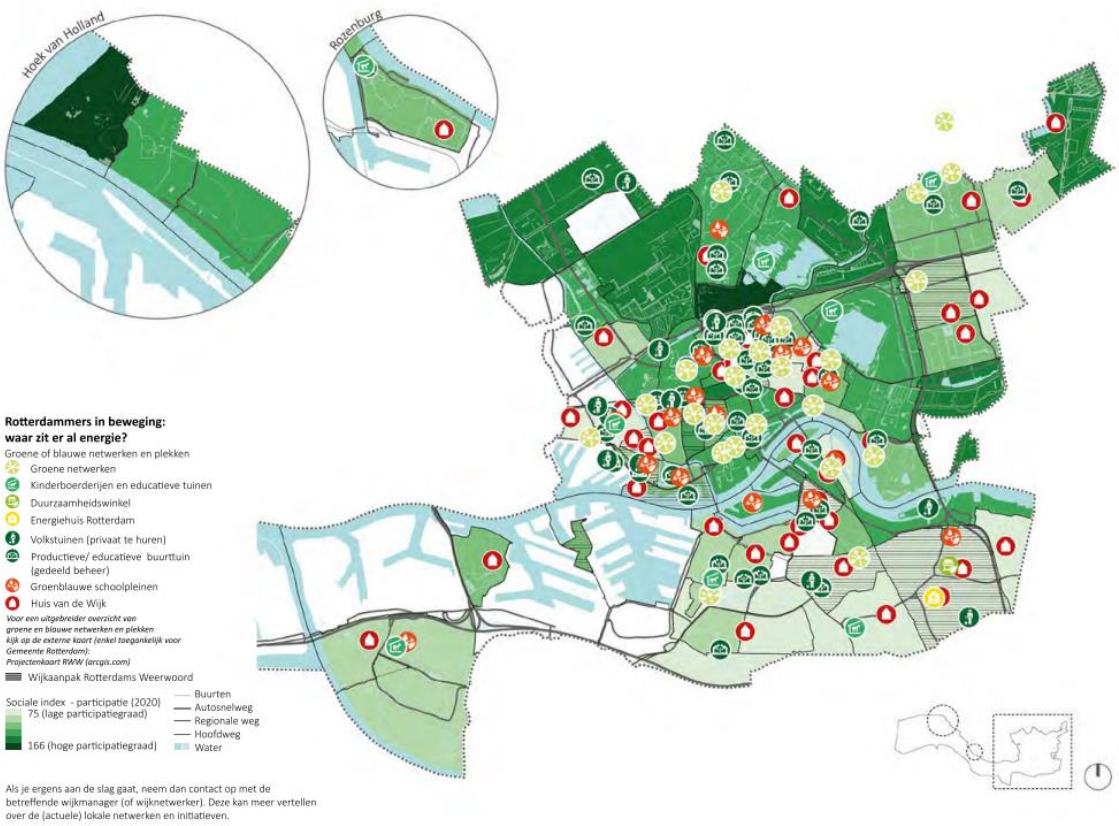
The data from the documents and interviews suggest that the municipality of Rotterdam recognizes the importance of collaboration with residents and stakeholders in climate change adaptation, including urban green initiatives, showing that the city addresses procedural green injustice. The municipality offers opportunities for residents to participate in making their neighborhoods greener, such as through facade gardens, and provides financial support for these green initiatives. Campaigns like 'Tegel eruit, Groen erin' ('Tile out, Green in') aim to involve residents in climate adaptation and the before mentioned Right to Challenge offers funding to residents who propose (green) initiatives. Likewise, the Coalition Agreement of Rotterdam (*'Coalitieakkoord 2022-2026'*, 2022) highlights the importance of resident participation as one of its objectives.

In addition, to effectively respond to initiatives, the municipality of Rotterdam recognizes the importance of building relationships and understanding the dynamics of neighborhoods. Therefore, the municipality has mapped sustainable social networks, social entrepreneurs, and outdoor initiators to identify the social index (Figure 5). This index indicates whether there is a high or low level of participation in the neighborhood. In this way, it becomes clear where the greatest opportunities lie for realizing climate adaptive measures in the private domain, or where extra effort is needed to realize added value, which shows that Rotterdam is actively trying to increase participation. The data presented is neighborhood-specific, offering comprehensive insights. The neighborhood-approach is also highlighted by respondent R12. The respondent mentions that the municipality uses a neighborhood approach to engage specific communities and neighborhood initiatives in their greening efforts. They actively collaborate with residents and community members to implement greening actions. The

municipality utilizes climate action teams and coordinators who are responsible for specific neighborhoods to leverage existing networks and address local needs and initiatives.

Figure 5.

'Rotterdam in motion. Where is there already energy?' (Programma kader Rotterdams Weerwoord, n.d.)



The documents indicate that the city of Rotterdam wants to profit from climate adaptation in enhancing citizen engagement. This perspective is reflected in the Rotterdamse Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013), which emphasizes the value of small-scale adaptive measures in fostering active participation and promoting a wider understanding of collaboration between the government and other stakeholders. The strategy aims to create a climate-resilient city where everyone has the opportunity to contribute. This shows that the city of Rotterdam is striving to address procedural green (in)justice by promoting inclusivity and involving citizens in climate adaptation efforts. Besides, the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013) highlights the shifting role of the municipality from safeguarding to more actively facilitating citizens initiatives:

> *"In addition to its familiar role as the "guardian of the public interest," the government is increasingly taking on a role as a facilitating and initiating party, as well as a supporter and catalyst of initiatives within Rotterdam's society. As a result, residents and businesses are given the opportunity to contribute to a climate-resilient future for the city based on their own strengths. Citizens and businesses are empowered to play an active and positive role as "producers."*
>
> Document Rotterdamse Adaptatie Strategie, 2013, p.27

Another step that is taken by the municipality to facilitate participation is the involvement of smaller companies like Tussentuin in guiding the participation trajectory of small-scale green initiatives.

Overall, the data suggests that the municipality of Rotterdam recognizes the importance of involving residents and stakeholders in climate adaptation and urban greening initiatives. However, how residents are exactly involved in the green plans of the municipality is less clear from the documents. The Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013) does note that active and targeted communication builds awareness and commitment. Rotterdams Weerwoord (*'Rotterdam's Weerwoord Uitvoeringsagenda 2020-2022'*, n.d.; *'Programma kader Rotterdams Weerwoord'*, n.d.) mentions that there are urban participation programs to bring climate adaptation to the attention of networks and to facilitate them to integrate climate adaptation measures into the neighborhoods. Examples are named such as Citylab010 and Opzoomer Mee. However, it is unclear from the documents what these programs exactly entail, and which measures are taken to actively involve residents in urban green projects. Also, which role residents and other stakeholders have in the decision-making process is not explained.

The Coalition Agreement (*'Coalitieakkoord 2022-2026'*, 2022) acknowledges that the approach to resident initiatives in Rotterdam varies not only between neighborhoods but also between individuals. The document indicates that there is trust in professionals, allowing them the freedom to handle things themselves. However, the specifics of this regulatory space are not further specified. The document also mentions that in each neighborhood, there is someone available for residents who prefer personal contact. The municipality is particularly active in neighborhoods facing multiple issues. Additionally, several measures are being implemented to improve communication with Rotterdam residents. These include simplifying forms, adopting a "one-stop" approach, and developing a municipal service app. Additionally, efforts are being made to improve the clarity of the websites of the municipality. While these measures

do not specifically focus on urban green spaces, they demonstrate the municipality's ambition to strengthen resident engagement.

Improving communication with the municipality is a necessary ambition, as some respondents indicate that it can be difficult to propose an initiative. For instance, respondent R10 mentions that there are numerous roadblocks within the city, citing bureaucracy as a major issue. Moreover, there is a staffing shortage in Rotterdam, particularly in the planning department, which already struggles to handle current workloads. Consequently, new initiatives often lack priority. Respondent R6 also states that proposing an initiative should be made easier for residents. The respondent notes that navigating through the website and filling out forms can involve several steps. One potential solution could be the establishment of neighborhood corporations, although they would need to be more accessible to a broader audience. The respondent emphasizes that these neighborhood corporations should be more inclusive, as they are currently too homogeneous in terms of age, education, income, and background.

In addition, several respondents mention the limited opportunities for residents to contribute their own ideas to municipal plans. An example provided by respondent R10 illustrates this issue within a street redevelopment project in Rotterdam. A public meeting was held, leading to a clash between neighborhood residents advocating for a wider sidewalk and the city and planners advocating for a central green berm. According to the respondent, these opposing sides emerged due to the setup of the participation process, which restricted it to a black and white issue. There was no room for creative solutions or a more incremental approach. Similarly, respondent R11 highlights the lack of collaboration or consultation with residents in Vreewijk. As a result, residents feel frustrated and unheard by the municipality.

Furthermore, interviews reveal the presence of inequality among neighborhoods in terms of residents' capacity to enhance green spaces in their areas.

> *"People who don't have as much access to funding and to the city etc., don't have a voice in whether something is greened, where it's green, what the quality of that is. […] You need to have access to the city and the approval structure to be able to work your way through, getting permits and working through all the silos and all the bullshit that happens when you want to work the city. People who know how to have the education and the background to be able to organize meetings and other people and fill out subsidy forms and to find money. To sweet talk the neighborhood organizations that*

can give them money. All these sorts of things come from having privilege and education and knowing the language, all that kind of stuff."

Respondent R10 - Anonymous

According to respondent R10, there are more privileged people who are familiar with the system and have established organizations in their neighborhoods. It is typically white, middle-aged, and highly educated individuals who initiate such organizations and apply for green projects, as stated by the respondent. Respondent R2 also recognizes this, noting that people facing various other social issues often lack the opportunity to engage in matters related to urban greenery due to their existing responsibilities. Despite Rotterdams Weerwoord tracking levels of participation (Figure 5), none of the documents mention the capacity of residents to participate and how this can be addressed.

In addition, some respondents express the belief that the municipality's efforts to involve residents in green initiatives are insufficient. There is a lack of knowledge and understanding regarding effective participation, as well as an inability to engage a wider and more representative range of groups. This is where the capacity gap in terms of green initiatives exists according to respondent R10. For example, respondent R6 mentions that people are often spoken about rather than being spoken with. In order to bridge this gap, respondent R10 suggests the need for different methods, such as visiting playgrounds or mosques and engaging in direct conversations with individuals. By doing so, the municipality can gain insight into how people prefer to be reached and invite them to participate in the decision-making process. Respondent R14 also emphasizes the importance of being present in the neighborhood and on the streets, as it provides a different perspective on what is needed compared to approaching it from a policy standpoint. The respondent believes that being physically present can yield substantial results. It allows for direct interaction with the community and serves as an initial point of contact. Moreover, it is highly accessible. The respondent points out that requiring residents to fill out forms or make phone calls may discourage some from taking action, whereas engaging with people directly on the streets helps address the issue of inequality and promotes inclusivity.

Some interviews also highlight the need for a different perspective on participation. Respondent R11 mentions a philosophical shift in the role of governing bodies, where the municipality focuses more on implementation and execution, while residents take on a more active role in decision-making and governance. Respondents R13 and R14 argue that it is often said that residents do not participate enough. However, they contend that residents participate

in their everyday lives and that it should be viewed from a different angle: *"We do not need participating residents, but participating professionals"* (Respondent R13).

In conclusion, Rotterdam is making efforts to address procedural green (in)justice and involve residents in urban greening initiatives. The municipality recognizes the importance of collaboration and participation, offering opportunities for residents to contribute to making their neighborhoods greener and providing financial support for green initiatives. The city emphasizes the value of resident engagement in climate adaptation strategies and aims to create a climate-resilient city where everyone has the opportunity to contribute. However, there are still challenges to overcome, such as inequalities in residents' capacity to participate and the need for more inclusive and accessible approaches.

4.1.3 Recognitional Green (In)justice

Based on the collected data, it can be concluded that there is limited emphasis on addressing recognitional green (in)justice in Rotterdam. However, it is evident that the municipality is aware of the presence of different nationalities within Rotterdam and the varied preferences of its residents. Nevertheless, this recognition is not explicitly mentioned in the context of green projects. For example, the urban vision (*'Stadsvisie Rotterdam 2030'*, 2007) indicates that there are various housing preferences among residents in different life stages that are difficult to generalize. Therefore, a neighborhood-specific area plan is developed to define the desired profile for each area. However, it is not clear how the desired profiles of the residents are determined.

Furthermore, it is evident from the urban vision (*'Stadsvisie Rotterdam 2030'*, 2007) that residents have indicated that the neighborhoods lack distinctiveness and have a limited sense of identity. Residents want 'their neighborhood' to have its own identity: a recognizable character with amenities and an ambiance that aligns with their lifestyle and specific needs. As a follow-up, area profiles have been created for this purpose. However, the method for determining these profiles is not specified, leaving it unclear whether all identities are encompassed and whether there is fair representation of stakeholders.

Respondent R2, Respondent R10, and Respondent R11 explain that in their experience, there is a need for more tailored and inclusive approaches to engage residents in participation. Respondent R2 mention that the standard approach of organizing meetings in rented venues often results in low attendance, with mostly officials present. They suggest that different approaches, such as neighborhood barbecues or digital platforms, may be more effective in reaching diverse residents, including those from different cultural backgrounds or those who

prefer online engagement. The respondent highlights the importance of understanding the specific characteristics and preferences of the community in order to design the most appropriate approach, rather than relying on a one-size-fits-all method. They also acknowledge that the current standard approach is still prevalent, indicating that there is room for improvement in implementing more targeted and effective engagement strategies.

Respondent R10 mentions that the turnout in a participation process should be more or less representative of the neighborhood's diversity, which is often not the case. It is mostly the same crowd who participates according to the respondent. The respondent recognizes that the people who are most affected by greening and removal of the parking, are mostly the marginalized, vulnerable people who were not heard in the decision-making process. The respondent raises the question of what is just and who decides what is just.

> *"So in terms of green justice, that's a tricky one. Because, yeah, who decides what is just? Is more green just, because people should have more green? Or is access to jobs, etc. more just? And we can only answer that question, of course, by talking to these people. But because they were not part of the process, it's not known how they feel and what they want."*
>
> Respondent R10 - Anonymous

Based on the provided information, it can be concluded that Rotterdam's approach to addressing recognitional green (in)justice is limited. The municipality acknowledges the diversity of its residents and their preferences but fails to specifically mention these factors in relation to green projects. The lack of clarity regarding the determination of desired profiles and the low representation of diverse stakeholders in participation processes indicate a need for more inclusive and tailored approaches to engage residents effectively.

4.2 Governance Capacity

The following subsections provides the results of the assessment of the governance capacity of Rotterdam. Besides a textual explanation, each governance capacity indicator includes a table with the assessment. As mentioned in section 3.5, green means *sufficient*, orange means *needs improvement*, and red means *poor*.

4.2.1 Awareness

Table 3. *Assessment Awareness Rotterdam*

Variable	Indicator	Assessment Remark
Awareness	Community knowledge	There is a significant level of community knowledge regarding urban green. However, the issue of urban green (in)justice receives less emphasis. While it is recognized that disparities exist in the distribution of green, documents do not elaborate on this. Respondents do show a certain level of community knowledge on urban green (in)justice.
	Local sense of urgency	There is a local sense of urgency to implement climate change adaptation strategies, including urban green. Also, there is a sense of urgency to collaborate with different stakeholders. However, the focus is not specially on addressing urban green (in)justice.
	Behavioral internalization	Specific action plans about addressing urban green (in)justice are lacking. However, there are programs regarding inequality of climate adaptation, such as ICAR, which shows that the city anticipates on urban green injustice.

The data shows that there is a significant level of community knowledge regarding urban green in Rotterdam. Various maps are included in the documents showing the city's geographical features and challenges, such as heat stress and distance by neighborhoods to cool spots. The recognition of these issues and the need for appropriate measures, such as de-paving and softening public spaces, reflect a level of community knowledge about the importance of urban green in addressing climate-related challenges. Regarding urban green justice, it is recognized that there are difference within the city, showing awareness regarding distributional green injustice. However, the documents do not further elaborate on this. For example, there is not a specific map available in the analyzed documents showing the distribution of green within the city.

Nevertheless, the establishment of ICAR is an example that shows that Rotterdam is aware of the need to address environmental injustice, which also includes urban green justice. Also, the city is aware of the need to involve residents in urban green initiatives, which is highlighted a few times within the documents and by respondents. Respondent R2 for example highlights the importance of taking sufficient time for preliminary research and involving local stakeholders in a project. By collaborating with these local stakeholders, they can help involve community members who are typically less accessible to the municipality, for example.

In addition, Rotterdam works on strengthening collaboration and creating awareness and involvement among various stakeholders. The city engages water managers, spatial designers, administrators, housing corporations, project developers, residents, and other parties

in realizing a water-resistant and green city. Campaigns and initiatives such as the Green Roof Info Days, the Green Team, and the "Replace Tiles with Green" campaign stimulate active participation and knowledge exchange among different actors.

Since Rotterdam is closely located to the sea and is below sea-level, there is a high local sense of urgency to implement climate adaptation strategies, including urban green. Also, the documents show a local sense of urgency regarding the importance of urban green on well-being and health of residents. There is a recognition that measures for greening, sustainability, and improved mobility offer opportunities for enhancing social cohesion, activating communities, and providing spaces for physical activity and relaxation. The emphasis on the quality and quantity of green spaces aligns with a local sense of urgency to create a healthy and pleasant living environment.

Even though the city is aware of the differences in urban green spaces within the city, it is not always clear how the city takes action on this. Some programs indicate that greenery is being added to the city and that there is a focus on improving the quality of green spaces. However, there are no concrete, clear plans to address neighborhoods with a lack of greenery. The documents and interviews also do not reveal how the municipality intends to involve stakeholders in urban green initiatives, only acknowledging the importance of their participation.

4.2.2 Useful Knowledge

Table 4. *Assessment Useful Knowledge Rotterdam*

Variable	Indicator	Assessment Remark
Useful knowledge	Informational availability	Information about green (in)justice is available for all stakeholders. However, information about participation is lacking.
	Information transparency	Most information is accessible and understandable for stakeholders. However, this information can be abstract, which can be improved. In addition, respondents mention information loss due to staff turnover, indicating that not all information is accessible.
	Knowledge cohesion	In general, information regarding urban green is consistent among different policy fields and stakeholders.

In many cities, including Rotterdam, the topic of urban green (in)justice has gained increasing attention in recent years. There has been a growing recognition that access to green spaces and the quality of the urban environment can have significant social, economic, and

health implications for residents. Rotterdam utilizes various instruments and resources to make knowledge about urban green available to different target groups. The city employs climate neighborhood maps, an online toolkit featuring descriptions of physical and non-physical climate measures, and other information sources such as videos, workshops, and informative websites. These tools provide professionals and residents with detailed information about the possibilities and benefits of green measures in the city.

> *"Many private gardens could use a bit more greenery. However, residents often hesitate when it comes to the maintenance of a green garden or lack knowledge about it. That's why we introduced a video with a step-by-step guide for a greener garden. Through social media, we reached a minimum of 38,000 residents with this initiative."*
>
> Document Rotterdam gaat voor groen 2018-2022, p 51

However, there are challenges to ensure knowledge availability. Respondent R10 mentions that City Officials do not always have the skills and knowledge in how to run a participation process. Respondent R6 highlights the potential loss of information due to staff turnover and the difficulty of establishing long-term relationships with residents. Additionally, the complexity of the process, language barriers, and difficulties with forms can also hinder knowledge sharing and participation, particularly for individuals with limited language proficiency. Furthermore, one respondent mentions that at the beginning it is hard to visualize what these plans and strategies means practically. The respondent mentions:

> *"Yes, especially in the beginning when it's still not concrete enough. It can be quite difficult for people who have some distance to grasp what it will actually mean for them. Only when it becomes concrete, then they suddenly realize and say, 'Oh, was that the intention? I don't want that at all.' And by then, yes, it's already too late, you know, so it always remains challenging."*
>
> Respondent R2 - Hoogheemraadschap van Schieland en de Krimpenerwaard

Utilizing easier and more accessible methods can help improve participation and knowledge sharing, but as mentioned above, the city of Rotterdam is working on improving this.

Respondent R10 highlights that there is more than enough knowledge available about the technical side of urban green. However, knowledge about how to make it happen is missing.

Additionally, as is mentioned in section 4.1.1 more needs to be done about the knowledge transparency. Respondents mentions that different methods are needed to reach different people and ensure inclusion. However, respondent R2 notes that the information that needs to be made public is indeed made public in Rotterdam. The city strives to be transparent and communicates through various social media channels.

Regarding knowledge cohesion, there is in general an alignment of information between different policy fields. The city aims for an integrated green approach and aligning projects with green projects. In addition, most respondents and policy documents share a common understanding of urban green (in)justice.

Overall, Rotterdam demonstrates a strong governance capacity regarding knowledge availability. The city employs various instruments to make knowledge available Rotterdam does have a lot of knowledge available There are however still areas for improvement regarding knowledge transparency, including addressing staff turnover challenges, improving accessibility, visualizing plans, and ensuring knowledge about implementation reaches a wider audience.

4.2.3 Continuous Learning

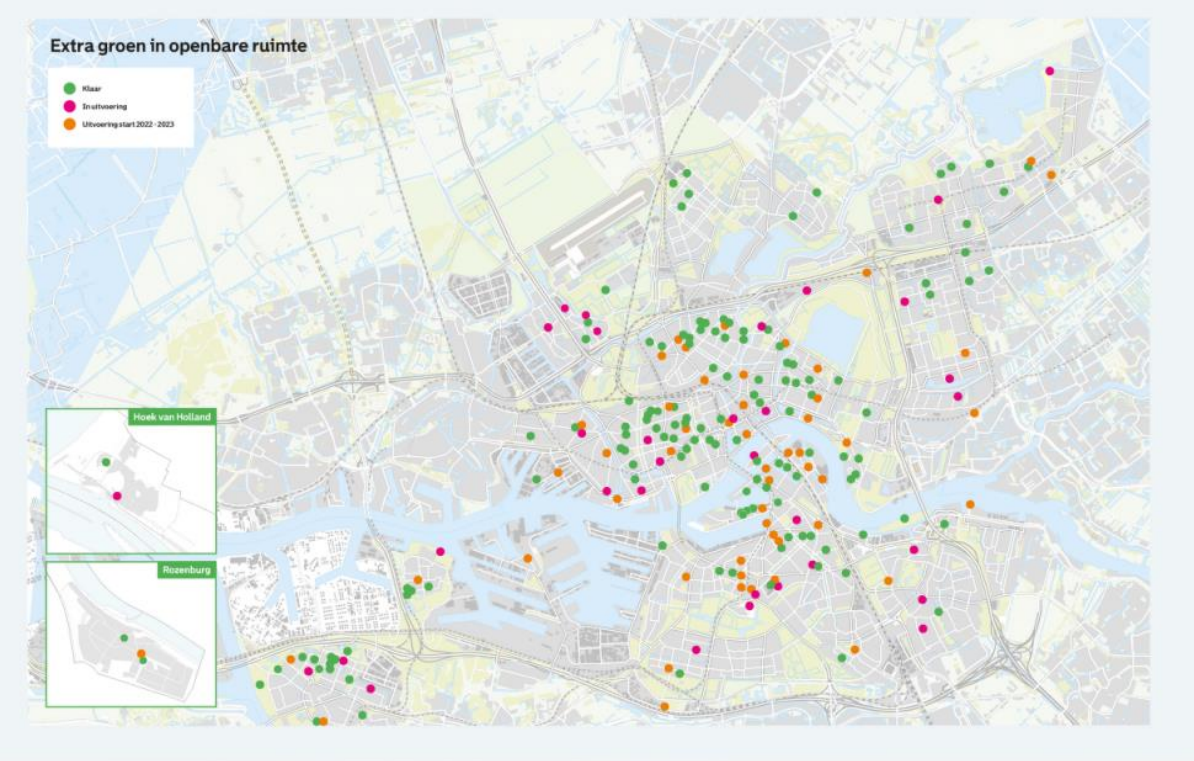
Table 5. *Assessment Continuous Learning Rotterdam*

Variable	Indicator	Assessment Remark
Continuous learning	Smart monitoring	Rotterdam has implemented a comprehensive monitoring system that provides data on various topics related to urban green.
	Evaluation	The evaluation process is not consistently conducted. This indicates that there is room for improvement in terms of assessing and evaluation the effectiveness of urban green initiatives. The absence of regular evaluations can hinder the city's ability to gather feedback and measure the impact of implemented measures.
	Cross-stakeholder learning	There is a recognized need for improvement regarding cross-stakeholder learning within the municipality of Rotterdam. While the city is open to interacting with other stakeholders and learning from them, there are areas where the participation process can be enhanced.

Rotterdam demonstrates a strong governance capacity for continuous learning. The documents show extensive monitoring practices, accompanied by maps and table, providing comprehensive insights into urban green, participation, and vulnerable neighborhoods. These visual representations offer a clear overview of the current situation, including the locations of ongoing projects, the level of participation in different neighborhoods, and the distribution of planned green projects across the city. Figure 6 provide an example of such a map. Additionally, the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013) highlights the city's commitment to continuously monitoring and studying the effects of climate change, which informs the development of further measures and interventions.

Figure 6.

Additional green space in public areas (Rotterdam gaat voor groen 2018-2022, 2022).



Furthermore, the document 'Rotterdam gaat voor groen 2018-2022' (2022) mentions that Rotterdam has made adjustments to its monitoring method in response to identified reliability issues. This exemplifies Rotterdam's proactive approach to monitoring and evaluation. Overall, these practices demonstrate the city's commitment to a smart monitoring system for tracking progress of among other things the city's greening efforts.

The green strategy ‘Rotterdam gaat voor groen 2018-2022’ (2022) includes an evaluation of the progress made in achieving the formulated plans of the former green strategy. For example, the document provides visual representations, such as figures, to showcase the additional square meters of greenery created and the ongoing preparations of planned green initiatives. Specific achievements, such as the greening of 1,275 streets by residents are also highlighted. These evaluations serve as evidence of Rotterdam's adoption of smart monitoring practices to assess the outcomes of green initiatives and reflect on their effectiveness. The document acknowledges that there is still much work to be done in enhancing urban green, yet it lacks a comprehensive evaluation that identifies the gaps and outlines strategies to address them. Additionally, various respondents note the lack of evaluation of urban green initiatives. Respondent R11 shows concerns about the effectiveness of the current evaluation process in their neighborhood. They used to have a monthly gathering of stakeholders used to serve as a forum for evaluation and addressing issues, also related to urban green. However, these gatherings stopped, and it is uncertain if the district councils wants to meet even twice a year. Respondent R11 emphasizes the importance of regular meetings to ensure stakeholders stay informed about ongoing developments and collectively address challenges. Also Respondent R6 mentioned that they do not consciously evaluate projects but recognizes the importance of evaluation:

> *“Not very consciously... We are not very actively engaged with that. But it is true, because we work a lot in Rotterdam, we often come back to places. And then you go and see how things are going. Or we are for example in an app group of residents. And then we do, yes, aftercare is a big word, but then you do have a kind of signaling function if things don't go well. We are no longer responsible, but then we can still establish connections with people who can help. So yes, you do learn from that. But we don't have a very clear evaluation system. I think that would be good. Especially for pilots where you work together with the municipality, but then you should also do that together with the team actually. So that the municipality and the housing cooperative learn from that themselves.”*
>
> Respondent R6 - Tussentuin

Regarding cross-stakeholder learning, the municipality shows efforts to improve its participation process. The city’s approach emphasizes collaboration among stakeholders in urban greening and climate adaptation initiatives. This inclusive approach involves the

engagement of various stakeholders, including community organizations, businesses, and residents, through platforms and programs like ICAR. However, several respondents indicate that there is room for improvement in terms of residents' contribution to urban green planning. It suggests that not all stakeholders have equal opportunities to participate in the decision-making process. This highlights the need to ensure more inclusive and meaningful involvement of residents in shaping urban green initiatives. This highlights the need to ensure more inclusive and meaningful involvement of residents in shaping urban green initiatives. Nevertheless, the overall analysis suggests that the municipality of Rotterdam maintains an open stance towards interacting with and learning from various stakeholders. By involving different actors in the planning and implementation processes, the city demonstrates a commitment to fostering collaboration and knowledge exchange.

4.2.4 Stakeholder Engagement Process

Table 6. *Assessment Stakeholder Engagement Process Rotterdam*

Variable	Indicator	Assessment Remark
Stakeholder engagement process	Stakeholder inclusiveness	While Rotterdam strives to involve relevant stakeholders in decision-making processes, there is room for improvement in prioritizing and aligning participation with stakeholders' needs. Local organizations play a crucial role in trying to include stakeholders in a low-key manner.
	Protection of core values	The perception among stakeholders in Rotterdam is that their core values and ideas are not adequately incorporated in urban green initiatives. This indicates the need for greater efforts to involve relevant stakeholders and include them in the decision-making process.
	Progress and variety of options	The feedback from several respondents indicates a perceived lack of opportunity for residents to contribute their own ideas to municipal plans. However, local organizations are actively engaging stakeholders in their decision-making processes. This engagement provides a platform for stakeholders to share their perspectives and bring forth new ideas for consideration.

As indicated in section 4.1.1, Rotterdam is taking steps to address procedural injustice. The stakeholder engagement process is closely tied to the concept of procedural justice.

Rotterdam understands the significance of involving stakeholders and acknowledges that tackling the city's environmental challenges requires collective effort. The municipality

utilizes tools such as 'Gemeentepeiler' to gather feedback from residents regarding specific locations or plans. Additionally, within several documents, slogans such as 'Together we achieve more!' are integrated, highlighting this collaborative approach. Consequently, the municipality is actively partnering with diverse stakeholders, including residents, housing corporations, developers, businesses, and social entrepreneurs. This collaboration is also influenced by the municipality's ownership of only 40% of the city's space.

The municipality of Rotterdam has implemented various mechanisms such as public consultations, stakeholder meetings, and feedback platforms to encourage meaningful engagement. The municipality also invests money in smaller businesses to carry out the participation process. These avenues enable stakeholders to voice their concerns, provide input, and influence decisions that directly impact their interests. Respondent R2 mentions that the municipality and other companies genuinely intend to carry out a participation process and recognize its importance. However, the respondent also notes that in practice, things sometimes turn out differently due to the significant time investment required. They got criticism that the project is progressing too slowly, which poses a challenge. The respondent mentions that this often happens because they frequently experience delays compared to the initial schedules that were set beforehand. The participation process then needs to be quickly incorporated. Taking more time for preliminary research and prioritizing consultations with local stakeholders can improve this situation.

In addition, frameworks are necessary for the participation process. According to respondent R2, not all projects are suitable for participation, particularly large-scale projects and area developments. It is unclear from the data whether these frameworks exist. However, smaller projects are well-suited to involving residents. The respondent emphasizes the importance of consensus, where residents feel personally responsible for contributing to the creation of a project. However, Respondent R6 also acknowledge the necessity of operating within the constraints of the municipality, which often imposes strict guidelines that may limit available options. In such cases, there are boundaries regarding the participation that is possible from residents.

Furthermore, respondent R10 highlights that if you go to almost any city-led process for planning, that it is the same crowd who participates.

> *"And for many, these kind of gatherings are not the way they prefer to communicate or express their ideas. I mean, sitting around a flip chart or drawing on a paper suits many*

people, especially those with more education, etc. But others might prefer to share stories or take photos or express in other ways."

Respondent R10 - Anonymous

This shows that not all stakeholders have the opportunity to be actively involved and express their opinion. This results in that their core values are also not incorporated in the decision-making process. The respondent emphasizes that it is more about offering 'a full menu of possibilities for people who want to participate'. There is not a single approach to get more people to participate, but the city needs to find out people's preference per neighborhoods. Besides, respondent R11 notes that one of the biggest barriers in addressing urban green injustice is that local organizations are not utilized by the municipality. Also, the residents are not actively involved. The respondent suggests encouraging local organizations to take on projects and involving residents actively, not just listening to their ideas but actually assisting and guiding them in implementing those ideas. This demonstrates that not all stakeholders are satisfied with the stakeholder engagement process.

According to the respondents, it is not a problem to reach different types of residents, even those who do not speak Dutch. The key is to go out into the streets and visit door-to-door, as this approach is highly accessible. Distributing flyers or using other passive methods is often ineffective and does not reach everyone. Respondent R14 also suggests that it is helpful to have a few enthusiastic individuals in a street or neighborhood. By highlighting their enthusiasm and involvement, it becomes easier to encourage others to join in. Respondent R10 also mentions that there are already existing events and social networks in the neighborhoods. It is also about linking to them and being part of those than start something new and expect people to come to that. Figure 5 shows that the municipality is aware of these social networks in neighborhoods. In addition, digital approaches can also be useful to contact residents.

Furthermore, respondent R6 emphasizes that they have personal contact with residents when working on a green project. The respondent mentions that even casual conversations at the door can be very meaningful, even if residents do not attend a residents' meeting. The respondent suggests that ideally, there should be three rounds of participation. This is because during the first round, residents may be caught off guard by the information. In the second round, residents can provide better input and ideas. Additionally, a third round is necessary to ensure that what has been conceived aligns with the residents' needs. However, the structure of the participation process varies from project to project. The data indicates that the participation process is not consistently implemented in this manner. Respondent R11 suggests that an

effective neighborhood council, working in conjunction with street ambassadors, can help facilitate this process by bringing together the voices and perspectives of the community members.

4.2.5 Management Ambition

Table 7. *Assessment Management Ambition Rotterdam*

Variable	Indicator	Assessment Remark
Management ambition	Ambitious and realistic management	Rotterdam does have ambitious goals regarding urban green and urban green justice. However, specific goals related to urban green justice are not formulated. Therefore, it is not clear if these goals are realistic. There are no specific targets.
	Discourse embedding	The current ambitions regarding urban green do align with the historical, cultural, normative, and political context of the city.
	Management cohesion	There are challenges regarding management cohesion in Rotterdam. There is a need for a more integrated approach between different sectors, programs and the management system.

Rotterdam is actively committed to improving the living environments for all residents, which includes the integration of green spaces. Rotterdam values investing in pleasant, attractive, green, and safe outdoor areas, as stated in the coalition agreement (*'Coalitieakkoord 2022-2026'*, 2022). By 2030, Rotterdam aims to become a green, healthy, and sustainable city (*'Woonvisie Rotterdam'*, 2016). Furthermore, Rotterdam's location exposes the city to various climate-related challenges. As a result, Rotterdam has ambitious goals for climate adaptation, aiming to become 100% climate-resilient by 2025 (*'Rotterdamse Adaptatiestrategie'*, 2013), including objectives related to urban green spaces. Rotterdam aims to maintain a city with a pleasant living climate where the impacts of climate change minimally affect the health and well-being of its residents. Recognizing the importance of green spaces, the city has invested in 20 hectares of green areas and various green urban projects. Rotterdam will continue to promote the establishment of green spaces in various ways in the coming years, although the specific methods to execute this are not described in the document (*'Rotterdam gaat voor groen 2018-2022'*, 2022). Additionally, there are no clear goals formulated regarding distributional green (in)justice. However, the stated goals do have an impact on all residents, showing that the city does not make a distinction between neighborhoods or residents. Furthermore, the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013) mentions that

greening the city, particularly in densely built areas with limited vegetation, is at the core of the strategy. This greening effort encompasses all scales within the city.

Regarding procedural green (in)justice, Rotterdam does have goals related to participation as is mentioned in section 4.1.1. The data from the documents and interviews suggest that the municipality of Rotterdam aims to collaboration with stakeholders in climate change adaptation, including urban green initiatives For instance, the Climate Action Plan (*'Rotterdamse Klimaataanpak'*, 2019) describes Rotterdam's intention to take action, including collaborating with society. However, how residents are exactly involved in the green plans of the municipality is less clear from the documents. Also, there are no specific goals formulated regarding participation rates for example. There are no specific goals or targets formulated regarding recognitional green (in)justice.

Improving the living environments is intertwined with Rotterdam's overarching goal of strengthening the economy and becoming and remaining a leading attractive city. The city aims to shed its image of being a "dirty, unhealthy city" (*'Stadsvisie Rotterdam 2030'*, 2007). The goals related to greening are thus intertwined with the normative context of the city. For instance, the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013) also mentions that greening leads to an appealing living environment, enhanced biodiversity in the city, and economic activities in the realms of recreation and tourism, which promotes the urban economy. Regarding discourse embedding, it can be concluded that the ambitions relate to the city's context.

Regarding management cohesion, one contradiction is founded in the policy documents. In the coalition agreement (*'Coalitieakkoord 2022-2026'*, 2022), it is mentioned that Rotterdam ranks last in the national sustainable municipalities monitor when it comes to the city's ecological capital. That is why the city has outlined in the coalition agreement its ambition to transform from a grey city to a green city. However, in other documents, including the urban vision (*'Stadsvisie Rotterdam 2030'*, 2007), it is stated that Rotterdam is a green city and also has the highest square meters of green space per resident. These statements contradict each other.

Still, Rotterdam considers it important to align planning with other spatial plans, promoting integration, cost savings, and fostering innovation. In the health policy document (*'Nota Gezondheidsbeleid 2016-2019'*, 2016), for example, it is stated that a comprehensive approach is necessary in all areas to promote health in Rotterdam, indicating the interconnectedness of different policies. The document also links green spaces to health. However, respondent R6 points out that green spaces are often not within the tasks of welfare

organizations. According to the respondent, there is still significant potential in this area, as green spaces can also be utilized, for example, to engage with people.

Aligning different policy domains is recognized as a challenge. For instance, respondent R2 mentions that multiple elements need to be implemented simultaneously in an area, such as utilities, parking spaces, and, consequently, green spaces. Respondent R12 acknowledges that there may be a lack of coordination between different departments within the municipality of Rotterdam when it comes to integrating green initiatives with other sectors like well-being. Respondent R4 notes that there is a need for a strong green advocate within the municipality who can forge alliances between different sectors, because not all departments within municipalities are yet fully on board with incorporating urban green. The respondent provides an example where the sewer department objected to trees near their infrastructure, resulting in a significant reduction in the number of trees planned for a new development.

Moreover, respondent R13 and R14 explain that within the municipality, there are programs and departments focused on the daily management and maintenance of the city, and separate programs that deal with future planning and policy-making. Integrating these programs into the existing system is challenging. Both respondents acknowledge that the city management recognizes the importance of green spaces but struggle to incorporate them into their system due to the complexity and time required for changes. They suggest that it would involve a shift in mindset, allowing for new rules and principles to be established over time. Therefore, respondent R13 expresses the importance of taking an integrated approach when considering green spaces within the municipality. The respondent suggests that it would be beneficial to move away from the narrow focus on efficiency in city management or the singular focus of specific projects or departments. Instead, the respondent emphasizes the need to view green spaces holistically, considering their impact on health, community engagement, and various other aspects. By recognizing the interconnectedness of these positive effects, the respondent believes that green initiatives can be approached in a more effective manner. The respondent mentions specific programs like Program 010 and Rotterdams Weerwoord that attempt to connect these aspects. However, the respondent acknowledges that within existing clusters or departments, achieving this integration may be challenging.

4.2.6 Agents of Change

Table 8. *Assessment Agents of Change Rotterdam*

Variable	Indicator	Assessment Remark
Agents of change	Entrepreneurial, collaborative and	The municipality provides support and

	visionary agents	resources for agents of change, but there is still room for improvement to enhance this opportunity for everyone.

There are various agents of change in Rotterdam, including Tussentuin and Buurtklimaatje. The initiative Buurtklimaatje, for example, started a few years ago with the idea of using climate change as an opportunity for neighborhood development. The organization believes that climate change is an urgent issue that needs to be addressed but also offers many opportunities if approached in a way that inspires people to take action in their own environment. The organization found that people enjoy getting involved in their own streets, and when asked about their priorities, green spaces often come up. By connecting these aspects, they have created green communities in various locations in Rotterdam, also leading to new agents of change.

Furthermore, Figure 5 shows that there are multiple green initiatives in the city. Rotterdam supports these actors and facilitates actions with for example funding. The city recognizes the importance of these bottom-up initiatives, as evidenced in the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013). These initiatives are also highlighted with interviews in document '*Rotterdam gaat voor groen 2018-2022*' (2022). However, there is still room for improvement, as indicated in section 4.1.1. It is evident that proposing initiatives and accessing resources, such as funds, is not equally accessible and understandable for everyone.

Additionally, respondent R11 emphasizes the need for street ambassadors. These ambassadors would be individuals who are actively involved in their respective streets and serve as direct points of contact between organizations and residents. The respondent believes that this approach would increase community participation and empowerment. The respondent suggests that implementing this concept aligns with regulations, is feasible to execute, and does not require additional funding. The respondent emphasizes that it would facilitate effective communication and collaboration between various organizations and residents, creating a platform for meaningful discussions and decision-making at a neighborhood level.

4.2.7 Multi-level network potential

Table 9. *Assessment Multi-level Network Potential Rotterdam*

Variable	Indicator	Assessment Remark
Multi-level network potential	Room to maneuver	Actors involved in addressing urban green (in)justice have the freedom and opportunity to take action, with the

		facilitation and support of the municipality. However, there are certain limitations imposed by the municipality, which restrict the extent of actions that can be taken by these actors in the realm of greening.
	Clear division of responsibilities	Despite the responsibility of the municipality and aldermen for the city and urban green (in)justice, the size and complexity of the municipality as an organization can sometimes led to challenges in clearly identifying who is accountable for specific tasks. One of the consequences of this complexity is the frequent turnover of key actors in neighborhoods, such as neighborhood networkers. These individuals play a crucial role in facilitating community engagement and communication, but their frequent changes can disrupt the flow of information and continuity of initiatives.
	Authority	The municipality and aldermen are responsible for urban green (in)justice.

As mentioned earlier, the municipality collaborates with various stakeholders such as housing corporations, developers, businesses, social entrepreneurs, and residents. Subsidies and funding are available, providing stakeholders with the opportunity to address urban green injustice. In addition, working at the grassroots level of the city, such as in greening initiatives, offers the possibility of directly involving Rotterdam citizens and fostering collaboration according to the Rotterdam Adaptation Strategy (*'Rotterdamse Adaptatiestrategie'*, 2013). Additionally, the ICAR program is an example of the opportunity provided by the municipality to address urban green injustice. This program was conceived by an employee within the municipality, showing the room to maneuver.

> *"In Rotterdam, many parties work together within their own responsibilities, ambitions, and objectives. Achieving a climate-resilient city cannot be accomplished by the municipality alone. The residents themselves can also contribute. Everyone is needed to implement the climate adaptation strategy."*
>
> Document Rotterdamse Adaptatie Strategie, 2013, p. 134

However, it is also mentioned by respondents that there are limitations regarding greening initiatives. Besides smaller green projects, like the creation of facade gardens, other

green initiatives are not allowed or funded by the municipality, showcasing limited room to maneuver for residents and small-scale stakeholders.

Besides, respondent R12 explains various stakeholders are responsible for implementing initiatives like Rotterdams Weerwoord and ICAR. While everyone of the municipality tries to contribute to the coalition agreements, each department is responsible for its own execution agenda and management plan. The ultimate responsibility lies with the responsible alderman. However, given the size and complexity of the municipality, with approximately 15,000 employees, it is challenging to pinpoint one person solely responsible for specific tasks such as urban green (in)justice. Instead, there is a collective approach to addressing challenges, and everyone takes some level of responsibility. Collaboration occurs based on shared interests and connections, but there is no fixed schedule or standardized approach for these interactions.

Ultimately, the municipality and the aldermen remain responsible. According to respondent R6, it is important that this responsibility remains with the municipality and not burdened onto residents or resident groups. The respondent highlights that residents should not be relied upon because the municipality lacks the solution or capacity. This sentiment is also emphasized by the municipality itself. Even for larger projects in the city, the municipality must take responsibility.

Some respondents raise concerns about actors leaving the neighborhood every few years, such as neighborhood networkers or housing consultants. These stakeholders are seen as crucial to address urban green (in)justice. This leads to frustrations because initiatives often have to start over again. This also leads to frustration among residents because their point of contact also keeps changing.

Respondent R11 also discusses the importance of having a neutral neighborhood manager who can identify opportunities and projects for the neighborhood without being influenced by specific political or self-promotion agendas. This manager's experience and connection with the community make a difference in their effectiveness.

4.2.8 Implementing Capacity

Table 10. *Assessment Implementing Capacity Rotterdam*

Variable	Indicator	Assessment Remark
Implementing Capacity	Financial resources	It seems that there are enough economic resources to address urban green (in)justice. The municipality allocated a budget to greening the city and provides several subsidies for residents and other

		stakeholders to green their environment. However, some stakeholders mention that they do not receive enough for the work that they do for the municipality. In addition, the management is too focused on efficiency of maintaining green.
	Policy instruments	There are several tools available that offer more insight into how various goals can be achieved through the green-blue infrastructure. There are, however, limitations to what other stakeholders can do regarding green initiatives. Also, there is a need for more diverse participation tools.
	Statutory compliance	There are no legally binding rules of goals regarding urban green (in)justice. The municipality does have ambitions regarding urban green set out in for example the Coalition Agreement. These are not legally binding as well.

Regarding financial resources, there are different opinions. On one hand, it is mentioned that there is enough money available to green Rotterdam. Although current cost increases are putting more pressure on the budget, according to respondent R2, the problem lies in the fact that the money is not being spent due to a personnel capacity issue. The respondent states that the shortage of staff is a bigger problem than the availability of funds. Respondent R10 also confirms that there is a shortage of staff at the municipality of Rotterdam, especially within the planning department.

On the other hand, it is mentioned that there are financial shortages at the municipality. For example, the Coalition Agreement (*'Coalitieakkoord 2022-2026'*, 2022) states that these financial shortages require the city to make choices in order to efficiently and effectively allocate the limited financial resources. It is not clear whether these financial shortages also lead to reduced investment in urban green initiatives. However, since Rotterdam has multiple programs for green and inclusive initiatives, with separate funding allocated for them, it does not seem that Rotterdam has such a significant financial shortfall that urban green (in)justice cannot be addressed. Additionally, there are other parties such as the Hoogheemraadschap van Schieland en de Krimpenerwaard that financially contribute to greening the city.

As highlighted before, the municipality of Rotterdam collaborates extensively with other stakeholders to implement green initiatives. The municipality has made subsidies and stimulation funds available, as evident in document *'Rotterdam gaat voor groen 2018-2022'* (2022). For instance, there are subsidies for residents, developers, and housing corporations to encourage the installation of green roofs. In 2020, this subsidy was expanded to include climate

adaptation, providing funding for water-retaining roofs or making gardens greener. This is being addressed through the Rotterdam Weerwoord program. Additionally, the municipality offers residents opportunities to make their surroundings greener or differently green, such as through the installation of facade gardens. Residents can take control of green spaces with the assistance of the municipality, including support from a neighborhood gardener. Green initiatives, like green-blue schoolyards, can also be realized with subsidies from the district committee, neighborhood council, or neighborhood committee. Rotterdam has been steadily expanding these approaches in recent years (*'Rotterdam gaat voor groen 2018-2022'*, 2022).

One example is the "Opzoomer Mee" program, where residents could receive a maximum of 375 euros per street to promote greening. In 2020, this initiative resulted in the installation of over 2,500 square meters of new green spaces. According to document *'Rotterdam gaat voor groen 2018-2022'* (2022), nearly a quarter of all streets in Rotterdam had residents engaged in neighborhood greening. This program encourages greening efforts, particularly since not all residents have the financial means to create their own facade gardens, as mentioned by respondent R14. Since 2019, neighborhood initiatives for additional greenery can receive a maximum of 5,000 euros through the "Rotterdam gaat voor groen" (Rotterdam Goes Green) program.

In addition to these subsidies, the municipality has allocated additional national funds to address the disadvantaged situation in the so-called "Vogelaarwijken" (disadvantaged neighborhoods) of Rotterdam. However, it is not clear whether these funds are also being used for greening initiatives in these neighborhoods.

Furthermore, as mentioned earlier, there is the "Right to Challenge," which allows residents or community initiatives to propose taking on certain tasks or responsibilities currently performed by the municipality. According to respondent R12, the idea is that residents or initiatives can perform the task for a lower cost, and the municipality can redirect the saved funds to the residents for their services. However, there is a condition that the residents must perform the task equally well or better than the current maintenance, as ensuring the cleanliness and safety of the city remains a core requirement for Rotterdam.

The latter has led to some dissatisfaction among respondents. Several respondents mention that they do not receive enough money for the work they do. Respondent R11 explains that their goal is to achieve self-management of all urban green spaces in the neighborhood. However, the respondent points out that they are considered too expensive and receive insufficient funding to sustain their business. The respondent highlights the costs associated with manpower, tools, machinery, and various taxes that an independent business must bear.

The respondent suggests that if the municipality allocated more funds to the "Right to Challenge," local organizations could take on more responsibilities, promoting participation, sustainability, and social inclusion. According to the respondent, they are currently perceived as too expensive to take on self-management.

> *"I kid you not, this is the answer I received. They are too expensive. But they prefer a big company in Amsterdam, paying them very little money, just to do some minor landscaping here, basically. Instead of actually addressing the greenery. I kid you not, that's literally what they said. It has to be as cheap as possible and require as little effort as possible. Well, that only fuels inequality."*
>
> Respondent R11 - Vreewijk Coöperatie

Respondent R14 also criticizes the current system. According to R14, the city maintenance primarily prioritizes efficiency and views green spaces as a necessary burden that must be managed. The respondent acknowledges that green spaces hold social and environmental value, but the city management is primarily focused on cost considerations. The respondent mentions that although there is a gradual shift occurring, it is challenging to bring about significant changes to the existing system. The city relies on contracted companies for maintenance, and making any alterations would involve legal procedures and potentially incur additional costs.

In addition to financial resources, the municipality also provides tools for climate adaptation measures. These tools offer more insight into how various goals can be achieved through the green-blue infrastructure. There are several tools available, targeting residents, designers, and policymakers. These tools can serve as aids in spatial developments and provide a better understanding for policy-making and decision-making processes. For instance, there is a tool for conducting roof scans to identify possibilities and costs. Furthermore, the possibilities for "Replacing Tiles with Greenery" were further developed. In 2021, a "tile taxi" was introduced, which collects removed tiles for the neighborhood. A green broker has been appointed to guide residents' more complex green plans through the municipal organization.

However, according to respondent R14, there are limitations imposed by the municipality on greening initiatives. The respondent highlights that while the municipality permits the creation of facade gardens, there are numerous other greening ideas that are not allowed. Furthermore, the respondent expresses that engaging with the municipality involves a time-consuming process of discussions, which can be exhausting. The respondent argues for

granting residents greater freedom and flexibility to make choices in their own surroundings. The respondent acknowledges that not everything is feasible, but believes that the current range of possibilities is too restricted. The respondent advocates for expanding options and enabling residents to experiment with greening initiatives.

According to respondent R10, there is room for improvement in terms of participation tools. For instance, R10 utilizes a participatory arts tool to gather information on people's preferences. They conducted an experiment with participatory photography, offering photography lessons in exchange for opinions about their street. It is noted that the municipality should also use a wider range of participation tools.

Furthermore, some respondents criticize the policy documents for lacking clarity on how the policies will be implemented. Respondent R10 specifically mentions the Rotterdam Resilience Strategy as an example of a beautifully written document. However, the respondent notes that it is evident that there is insufficient capacity within the city to effectively execute the strategy. There seems to be a lack of understanding regarding the practical implementation of the policies.

> *"Better participation methods and processes. And that starts with how you organize the process. So I described the Claes de Vrieslaan redevelopment process. Everybody within the process did their job very well. They're all people who care. And they did the best they could within the process. The problem was that the process wasn't a good one. So no matter how well everyone acts within the process. If you design a poor process. You're not going to succeed. So it starts with a good process design. And that's not a common skill that planners have. So that's where I think it's more tends to be focused on technical side. And then also working with new techniques in terms of participation."*
>
> Respondent R10 - Anonymous

Regarding statutory compliance, there is no legislation regarding urban green (in)justice. The municipality has set some ambitions and goals, however, these are not binding. Respondent R12 explains that the coalition the agreement is not legally binding as well in terms of consequences. However, it serves as a target that the entire municipality strives to achieve. If the target is not met, political parties can be held accountable in local council elections and other political processes. While there are no legal consequences for not achieving the target, it can be seen as a setback for the political parties involved.

All in all, it can be said that the implementing capacity of Rotterdam to address urban green (in)justice needs improvement. There are sufficient financial resources and tools available, however, more needs to be done to increase the implementing capacity to address urban green (in)justice.

5. Results Utrecht

This Chapter presents the results of Utrecht. As well as Chapter 4, an examination of how distributional, procedural, and recognitional injustices are addressed is provided. The objective is to provide a comprehensive overview of the approaches taken to address these forms of injustice and answer sub-question 2. Additionally, an analysis of the governance capacity is presented, addressing sub-question 3.

5.1 Urban Green (In)justice

The city of Utrecht has long been recognized for its progressive and innovative approach to sustainability, particularly in its ambitious green policy. According to the *Groenstructuurplan*, urban green is one of Utrecht's most important qualities with a strong commitment to environmental protection and improving the quality of life for its residents, Utrecht has implemented a range of initiatives to enhance its green spaces and promote '*Healthy Urban Living'*. Utrecht's vision for urban green space is based on improving the quality of the current urban green area and realizing green connections to the surrounding landscapes and expanding the green area around Utrecht (*Groenstructuurplan)*. In 2017, the *Groenstructuurplan* has been updated. This updated 2017 Green Structure Plan has five main objectives:

1. Increasing the ecological, recreational and landscape quality of Utrecht's existing urban green space for people, plants and animals;
2. Improve the accessibility of the green areas around Utrecht by constructing recreational and ecological connections;
3. Expanding the green outdoor space by constructing large-scale green areas around the city.
4. Healthy urbanization.
5. Climate adaptation

5.1.1 Distributional Green (In)justice

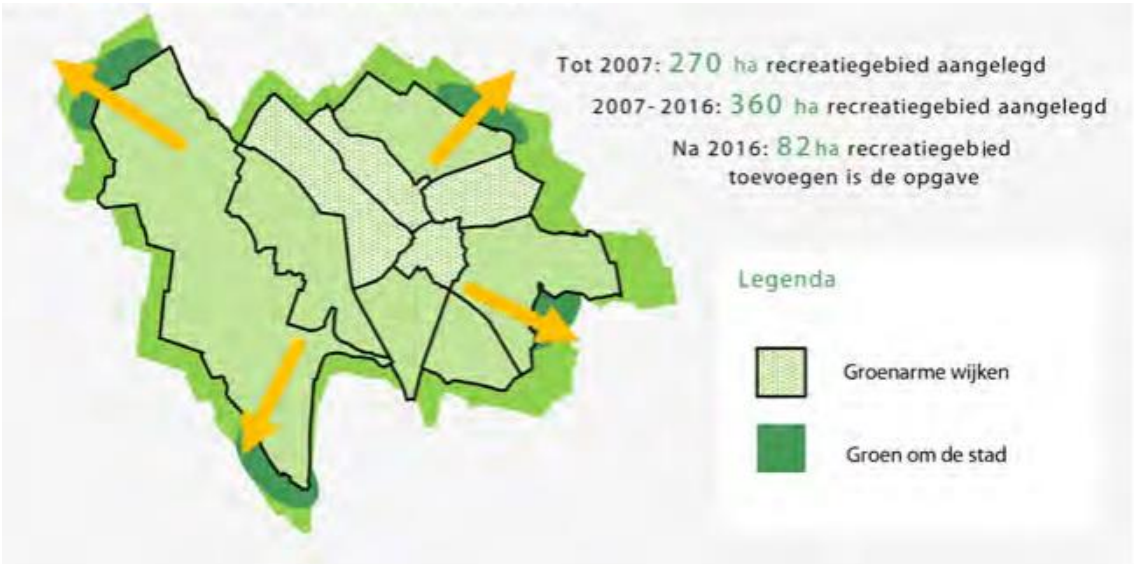
The analysis of policy documents and interviews shows that Utrecht recognizes the issue of distributional green (in)justice. This recognition is evident in the policy documents through textual descriptions and visual aids such as maps an graphs. For example, the Green Structure Plan (*'Groenstructuurplan Utrecht'*, 2007) identifies a shortage of approximately 300 hectares of green space in Utrecht, highlighting an understanding of the current challenges.

Moreover, the documents and interviews emphasize disparities in both the quantity and quality of green spaces among different neighborhoods in Utrecht. Respondent R4 confirmed a correlation between income levels and green spaces. Respondent R7 mentions that differences in urban green can be observed in how neighborhoods are constructed. Newly-built neighborhoods, such as Rijnvliet, prioritize sustainability and meet high green standards, while older neighborhoods like Rivierenwijk lag behind in adopting similar practices. According to the respondent, "*there is an evident discrepancy between what is being built now and what was constructed in the past"* (Respondent R7).

The policy documents also demonstrate an understanding of the disparities in urban green distribution. The documents identify "green-poor" neighborhoods, which are areas with relatively less green space due to for example urban planning, high usage pressures, or restrictions imposed by the subsoil, such as limited space caused by cables and pipes. Maps and figures in the documents illustrate these disparities. For example, document *'Actualisatie Groenstructuurplan 2017-2030'* (2018) incorporates a map (Figure 7) that identifies neighborhoods with insufficient greenery, showing the awareness of distributional injustice of urban green. However, even though this Figure shows differences per neighborhoods, numbers of the amount of green or details about the distribution at lower level are missing.

Figure 7.

Map green-poor neighborhoods Actualisatie Groenstructuurplan



Note. The light green areas show the neighborhoods that are indicated as green-poor neighborhoods. The darker green shows the green that lays around the city.

The Green Structure Plan (*'Groenstructuurplan Utrecht'*, 2007) provides another example, which highlights Utrecht awareness about distributional green (in)justice. The document shows the varying recreational qualities of the green network across different areas in Utrecht. This also shows that Utrecht considers not only the quantity of urban green, but also the quality of urban green. Indeed, from the interview and document analysis, it becomes clear that Utrecht is actively working on increasing both the quantity and quality of green spaces through various initiatives and programs to ensure that all residents have accessible green spaces near their homes. According to Respondent R4, Utrecht has expressed the ambition to work on neighborhoods with low green scores. Also, according to respondent R1, the municipality aims to address this issue by striving for a more equitable distribution of green spaces throughout the city while also focusing on enhancing their quality, which is in line with the content of the policy documents.

> *'Preserving and developing the urban green structure is of greater importance in places with obvious shortages of neighborhood green space than elsewhere.'*
>
> Document Actualisatie Groenstructuurplan Utrecht, 2018, p. 33

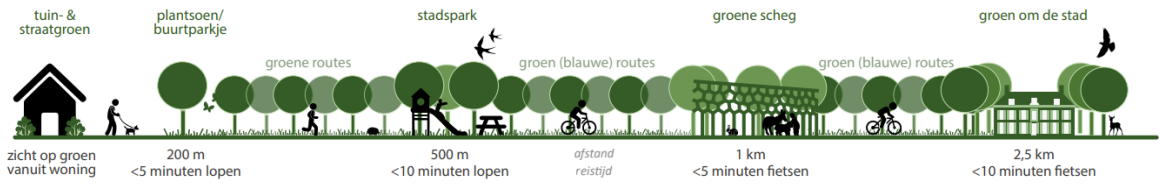
In addition, the municipality aims to improve the accessibility of urban green spaces by establishing recreational and ecological connections. It recognizes that distances have increased with the annexation of Vleuten and De Meern, and existing connections are insufficient. Efforts are made to build new walking and cycling connections, while also striving to increase public accessibility to various spaces, including semi-public places like schoolyards, sports complexes, allotments, cemeteries, and private gardens and courtyards. The city strives to provide a park or green lane within reasonable walking distance and a green space within cycling distance for every home. Efforts involve greening residential streets and adding at least 200 acres of green space in immediate residential areas. Figure 8 shows the ambitions regarding the distances of urban green, which highlight that Utrecht aims to improve the accessibility of urban green for residents, improving distributional green justice.

Additionally, the city invests in exchanging stones for greenery, prioritizing green-poor neighborhoods where residents' health is at a disadvantage compared to greener areas. Therefore, the municipality of Utrecht is doing pilots in green-poor neighborhoods One respondent is working on these pilots, which are located in Rivierenwijk and Noordwest. These neighborhoods were selected as pilot areas by the municipality to explore ways to add more greenery and address climate adaptation and social aspects related to green spaces, since these

neighborhoods were identified as green-poor neighborhoods. Since these two neighborhoods are densely populated and built, one of the challenges faced is the lack of available space for greenery. The focus on green-poor areas shows as well that Utrecht is actively trying to address distributional green injustice.

Figure 8.

Distances to urban green (Ruimtelijke Strategie 2040).



Note. Translation from left to right: Garden and street greenery: view of greenery from the house, Plantation/neighborhood park: 200 m and less than 5 minutes' walk, green routes, city park: 500 m, less than a 10-minute walk, green (blue) routes, green shingles: 1 km, less than 5 minutes cycling, green (blue) routes, green around the city: 2.5 km, less than 10 minutes by bike

From the interviews and document analysis it also becomes clear that also neighborhoods with a lot of urban green can be targeted if the quality is low. Respondents R4 and R16 mention an example of Overvecht, which is already green but requires improvements in green quality. Overvecht is the greenest neighborhood of the city of Utrecht, however, the health disadvantage of residents is the greatest. This shows that the relationship between green spaces and health is acknowledged, with the documents highlighting the impact of green spaces on better health and life expectancy. It is mentioned that the presence of social housing in certain areas, such as Overvecht and Kanaleneiland, contributes to a higher concentration of socially vulnerable individuals. This highlights the need to address social inequalities and provide support to these communities to improve overall well-being, not just green. Respondent R3 also mentions the difference in involvement between residents of owned properties and those living in rental housing, noting that people tend to be more engaged when they have ownership or a stake in the neighborhood, which will improve the quality of the green.

Therefore, neighborhoods like Overvecht and Kanaleneiland receive additional investments due to health disparities. It is however acknowledged that there is a complex relationship between health and green spaces. Health depends on many other factors such as socioeconomic conditions. However, it is possible to establish a relationship between the

quality of the layout of urban green. Parks and green connections invite healthier exercise, such as walking, cycling or sports. Planting purifies the air and blocks noise. Utrecht seeks innovative solutions for more and higher quality green and blue in a densifying city. Even though the municipality of Utrecht is actively trying to address green-poor neighborhoods and sees it as very important that this happens, the document '*Groenstructuurplan'* (2007) states that "*an even distribution of acreage across the city is not feasible*".

Regarding trees, the city of Utrecht is also committed to preserving and developing the tree structure before 2030 by completing missing trees in the tree structure to create a cohesive structure. Therefore, the city of Utrecht has created a Tree Policy ('*Bomenbeleid*, 2018). In this policy document, the focus is on looking at where trees can be added in spatial plans over the next few years. The structure is a theme that is mentioned a lot. This indirectly refers to distributional justice, however, green poor neighborhoods are not specifically mentioned. In addition, the city's goal is to plant as many trees as houses are built.

Not all policy documents highlighted the distributional injustice of urban green explicitly. Document '*Handboek Openbare Ruimte'* (2021) addresses various aspects of public space but does not have a specific section explicitly discussing the unequal distribution of urban greenery across the city. The document primarily focuses on guidelines and regulations related to the design, layout, and management of public spaces in Utrecht.

Overall, the policy documents and interviews reveal the municipality's commitment to addressing distributional green injustice, focusing on increasing green spaces in green-poor neighborhoods, improving accessibility, and enhancing the quality of urban green spaces.

5.1.2 Procedural Green (In)justice

Procedural (in)justice is also an important goal for the city of Utrecht. However, while citizen participation and inclusion are emphasized as crucial principles by the municipality of Utrecht, specific references to procedural justice in the context of urban green are less prevalent than distributional green (in)justice. In addition, it is highlighted by some residents that the city is not doing enough to actively involve residents in their decision-making process.

The Green Structure Plan (*'Groenstructuurplan Utrecht'*, 2007) and the Updated Green Structure Plan (*'Actualisatie Groenstructuurplan 2017-2030'*, 2018) in Utrecht emphasize collaboration and consultation regarding green spaces, aiming to maximize the city's natural and societal resources. The municipality provides guidelines and support to green initiatives, ensuring alignment with the city's objectives and standards. This collaborative approach fosters

inclusive decision-making and reduces the risk of procedural injustice. Respondent R5 also notes that there are policies in place that ensure participation.

One of these policies is document *'Samen stad maken op de Utrechtse manier'* (2019), which is a document dedicated to participation and 'creating the city together' with residents, entrepreneurs, civil society organizations, and other stakeholders. The document serves as an action program and an elaboration of the coalition agreement (*'Coalitieakkoord 2022 – 2026'*, n.d.). It highlights the knowledge of stakeholders and the involvement of residents. The document reveals that Utrecht is already an active city, with four out of ten residents actively engaging in community work, and nearly 20% taking action to influence the municipality's policies, plans, and activities. Utrecht operates based on the idea that "you can go faster alone, but you can go further together," with three central goals: inclusivity, engagement, and collective learning. These goals are translated into five strategies: (1) providing tailored solutions, (2) making participation more accessible to involve a diverse range of people, (3) harnessing the strength, knowledge, and expertise of the city, (4) enhancing quality by developing knowledge and expertise, and (5) continuously developing participation. These strategies are extensively elaborated in the document. This shows that Utrecht is actively working towards improving procedural (green) (in)justice.

The green structure plan ('*Groenstructuurplan*', 2007) also shows that in the development of green in neighborhoods, residents have actively participated, resulting in improved accessibility and usable green spaces that incorporate elements such as social interaction, nature, play areas, recreation, and water management. The projects have been executed in collaboration with residents and have been met with great enthusiasm. By 2017, neighborhood green plans were completed in all ten districts of the city, with approximately one-third of the 190 projects leading to some form of self-management. This demonstrates that the municipality is dealing with procedural justice, as residents' involvement and input were valued in decision-making processes concerning urban green spaces. The active engagement of residents not only ensured that the green spaces met the needs and desires of the local community but also fostered a sense of ownership and community spirit. The fact that a significant portion of the projects resulted in self-management further reinforces residents' empowerment and responsibility.

> *"The development of sufficient new greenery can only be achieved through collaborative governance involving external partners, with effective organizational and*

financial coordination. Ultimately, the green program meets the desires of both current and future residents of Utrecht."

Document Groenstructuurplan, 2007, p. 33

In the Tree Policy ('*Bomenbeleid*, 2018), it is stated that by engaging stakeholders through public participation, soliciting their views, and providing avenues for objection and appeal, decision-making by the college and city council can be influenced in a more informed and meaningful manner. This emphasizes the importance of procedural justice by ensuring that affected individuals and groups have a platform to express their views, contributing to a fair and transparent decision-making process. In addition, the policy document suggests an effective tree section in planning documents which can offer a comprehensive and timely assessment of the implications of interventions on trees. This provides the information necessary for careful consideration of the various interests in the city.

"The municipality involves residents whenever possible in the selection of new trees. Twice a year, a tree removal list is published, which includes all trees to be cut down in the next six months, allowing active discussions with residents about their replacement."

Document Bomenbeleid, 2018, p.32

Regarding resident participation, it is mentioned in interviews that the municipality is exploring various methods. They have an initiatives fund where residents can submit their own proposals, including green initiatives, with a budget of up to €35,000. Additionally, the city organizes neighborhood events such as "Geveltuinen burendag" (Facade Gardens Neighbors' Day) to encourage participation in a more accessible way. The municipality communicates these opportunities through social media, flyers, and other channels.

However, it also appears that some respondents believe that not enough is being done regarding citizen participation. Respondent R3 discusses the lack of focus on residents in urban planning and emphasizes the importance of involving them in decision-making processes. The respondent shares an example of a project they did themselves in Gierzwaluwplantsoen where residents were involved, resulting in increased enthusiasm and a sense of ownership within the community.

"That's another one of those projects where normally the municipality approached it in such a way that a landscaper was hired who would lay out all kinds of facade gardens and then some plants were offered and then the residents put them up and yes, that was just the way they organized it. Whereas my way was more involving the people much more in it, so taking tiles out of the ground yourself, digging out sand, putting soil back in."

Respondent R3 - Tuinwijzer Wagenborg

Respondent R3 highlights the limited involvement of residents in the redevelopment of the Merwedekade Park area and the Waalstraat neighborhood. The respondent argues that residents should have a stronger role and that the revitalized areas should align with their specific needs and desires. Respondent R16 acknowledges the challenges of engaging residents in urban green initiatives. The respondent recognizes that it's easy to advocate for community involvement in theory, but it can be difficult to put into practice. There is a struggle to generate interest among residents and establish an effective engagement process. According to respondent R3, this issue can be addressed by meaningfully involving residents. Similarly, respondent R16 acknowledges that the lack of resident involvement may stem from a perception that their input is disregarded by authorities, leading to a sense of ineffective participation. The respondent suggests that residents need to see their ideas and input being valued and resulting in tangible actions. Furthermore, residents seek a clear vision for the future and want to understand how their involvement will benefit them. The respondent proposes that there is room for improvement in increasing the frequency and efficacy of resident involvement. Respondent R3 expresses the need for genuine involvement and collaboration with residents during the planning stages, rather than simply providing token opportunities for input. The respondent believes that residents often have valuable ideas and perspectives that should be considered to create more inclusive and successful urban projects.

"And the municipalities are easy there in that regard of we come up with some plans, we implement it and then that's it. But you are completely ignoring the people who are ultimately what matters."

Respondent R3 - Tuinwijzer Wagenborg

Besides, respondent R7 expresses frustration with the current situation, stating that as a resident or semi-initiator, they feel the need to beg for green spaces and support from the

municipality. The respondent expresses a desire for the situation to be reversed, with the municipality taking the lead in providing green initiatives and offering support to residents. They mention the lack of structure, funding, and knowledge center for green initiatives, contrasting it with the availability of resources for other areas such as language learning. The respondent emphasizes the importance of the municipality being proactive in leading the development of green spaces and involving residents in the process.

The pilots that are currently being implemented in Rivierenwijk and Noordwest, primarily rely on residents' initiatives, aiming to identify the needs of the community regarding greenery, showing that the city is actively trying to improve procedural green justice. According to respondent R1, this is a different approach than normally. The municipality of Utrecht employs various scales, and in this particular project, they are using the smallest scale, which involves direct engagement with residents. Effectively involving residents in the process of incorporating greenery is a primary objective of these projects. The respondent emphasizes the valuable lessons being learned for future project. This shows a shift in the strategy of Utrecht regarding urban green projects to address urban green justice more equitably. Even though the pilots are seen as a new approach to participation and urban green, respondent R5 clarifies that the municipality is already implementing different participation strategies in urban green projects. The respondent shares an example of how they worked with residents to revitalize the inner courtyards between residential buildings in Overvecht, involving them in the decision-making process and encouraging their participation in activities.

> *"And then I got involved with a whole group of parties to renovate those inner courtyards. So together with the residents. We started by making a real call to action. Around a thousand people live around such a courtyard. We did go from door to door and ask if they wanted to participate. We had indications that people were already interested. So we also called upon them. And we used that to renovate the courtyards."*
>
> Respondent R5 - Municipality of Utrecht

However, the respondent acknowledges the challenges in engaging residents from diverse backgrounds and mentions the need for tailored approaches to communication and involvement. A few respondents, including R1, R8 and R9, note that certain types of residents tend to be more proactive in initiating and participating in community projects, creating a potential disparity. The majority of the respondents acknowledge the presence of inequality in resident initiatives within the municipality: engaging in initiatives requires specific skills,

including the ability to create budgets and gather signatures for applications. Certain residents, who are familiar with the workings of the municipality and enjoy undertaking such projects, are more likely to participate. This observation points to a particular type of person being involved in these initiatives, highlighting a form of inequality in access and engagement with municipal processes. Also respondent R7 points out that the capacity of individuals in a neighborhood plays a significant role in their ability to prioritize and engage with green spaces. This challenge is recognized by the municipality and addressed in several documents, including document *'Samen stad maken op de Utrechtse manier'* (2019).

According to respondent R5, cultural differences and expectations can complicate community engagement efforts, but the respondent emphasizes the importance of equal opportunities and inclusivity. According to respondent R1, the municipality of Utrecht acknowledges that communication strategies may differ based on the neighborhood and its specific characteristics. Local neighborhood offices play a vital role in promoting projects and tailoring communication to the needs of residents. While the municipality generally avoids communicating in foreign languages, they strive to engage with residents effectively and consider different avenues for participation. For example, they utilize physical mailboxes in community centers for those who are less digitally connected. These actions reflect the municipality's commitment to procedural justice and fostering a more inclusive and participatory decision-making process in urban greening initiatives.

Another challenges the municipality faces in this regard is the discrepancy between the municipality's ambitious goals for greenery and residents' preferences. While the municipality aims to invest in adding more green spaces, some residents resist the idea of having greenery in their immediate vicinity. Balancing these differing perspectives and finding common ground between the municipality's long-term vision and the residents' desires present a complex challenge. This dilemma discussed in the interview is not discussed in the analyzed documents. However, acknowledging this discrepancy and finding common ground between the municipality's vision and residents' preferences will be crucial in ensuring procedural justice and promoting a collaborative approach to urban greening.

In conclusion, the municipality focuses on procedural justice concerning urban green spaces. This is evident from various policy documents and interviews. While there is still room for improvement, the municipality demonstrates its commitment to addressing procedural injustice through initiatives like the pilots in Rivierenwijk and Noordwest. However, it remains unclear what role the municipality should play in green projects and how they intend to pursue all their ambitions. According to respondent R16, clear guidelines need to be established

regarding the level of public input. The municipality's approach to green initiatives is still evolving and subject to the political decision-making process. While they strive to address inequality, promote green spaces, and foster inclusivity, specific strategies and actions are yet to be fully determined.

5.1.3 Recognitional Green (In)justice

In a few policy documents, it is recognized that Utrecht is a diverse city, with many different cultures. The city mentions to be proud of that. According to the coalition agreement (*'Coalitieakkoord 2022 – 2026'*, n.d.), there are 172 nationalities living in our city and 30 percent of the population has a migrant background. Still, the majority of the policy documents and interviews did not frequently discuss themes related to recognitional justice.

Nevertheless, there is an understanding that different stakeholders and residents have diverse needs, perspectives, and values regarding urban green projects. The interviews revealed that collaborating with local neighborhood groups allows for improved community engagement, as these groups possess a deeper understanding of the residents in their respective neighborhoods. This indicates a recognition of diverse identities and perspectives within the community. For example, respondent R5 noted that there are dozens of nationalities in neighborhoods and emphasizes the importance of striving for equal opportunities and representation for all residents.

> "*There are dozens of nationalities there. It is very difficult to enthuse all those nationalities in their own way. We had Turkish women … We knew someone who could speak Turkish, and she knew many women. They came to an afternoon session and actively participated by looking at photos... They shared their opinions, what they found beautiful, and what they would like. Then we provided them with a creative cork package, a DIY kit, to see what they would create. However, for the Moroccans, we had to go to the location itself. We had to do it on Saturday mornings when they are all at home, and the children are out and about. They may not play football, but they definitely go outside. So, we simply stood there with a cart in the square to involve those people. You can see that you have to make a tremendous effort to achieve the same level of communication. You really have to put in much more effort. Unfortunately, I have to say that it is still the case. We have made progress in integration, but we still have many newcomers from various nationalities. And they require a different approach."*
>
> Respondent R5 - Municipality of Utrecht

Respondent R1 mentions that rather than using the term "population groups," they prefer to focus on understanding residents' preferences and adjusting communication strategies accordingly. Different individuals have different priorities, and the municipality aims to account for these variations. So, although not extensively discussed, this recognition through collaboration suggests efforts towards promoting recognitional justice in the context of urban green initiatives.

In addition, despite the few references that described interest in engaging disadvantaged and/or neglected groups within the planning process, many plans discussed community engagement generally as either a city-wide or universal effort (i.e., without targeting specific neighborhoods or communities). In the coalition agreement for example, it is stated that:

> *"For all those people, we want and need to be there. Democratic tools, dissent, participation: it is for everyone, regardless of education level, neighborhood and background."*
>
> Document Coalitieakkoord, n.d., p. 8

In addition, The Green Structure Plan (*'Groenstructuurplan Utrecht'*, 2007) mentions the multifunctionality of urban green spaces for various target groups. The Griftpark, for instance, is highlighted as a multifunctional space, catering to a wide range of interests and preferences. It offers appealing elements for nature enthusiasts as well as hip-hop skaters, demonstrating an understanding of the diverse needs and preferences of different target groups within the community. This recognition of the multifunctionality of urban green spaces contributes to the notion of recognitional justice by acknowledging and accommodating the various interests and activities of different segments of the population. However, recognitional justice receives no further emphatic designation in the document.

Overall, it can be concluded that while recognitional justice is not extensively discussed in the majority of the policy documents and interviews, there are some indications of efforts towards promoting recognitional justice in the context of urban green initiatives in Utrecht. The mention of the multifunctionality of urban green spaces in relation to various target groups and the acknowledgment of the importance of tailored approaches demonstrates an understanding and recognition of the diverse interests and activities within the community. However, more explicit attention and actions focused on recognizing and addressing the

diverse identities, perspectives, and needs of different groups within the community would be necessary for a comprehensive approach to recognitional justice.

5.2 Governance Capacity

The following subsections provides the results of the assessment of the governance capacity of Rotterdam. Besides a textual explanation, each governance capacity indicator includes a table with the assessment. As mentioned before, green means *sufficient*, orange means *needs improvement*, and red means *poor*.

5.2.1 Awareness

Table 11. *Assessment Awareness Utrecht*

Variable	Indicator	Assessment Remark
Awareness	Community knowledge	There is a sufficient level of public knowledge regarding urban green (in)justice.
	Local sense of urgency	Utrecht is aware of the benefits urban green can bring and the importance of urban green. In addition, the city acknowledges differences regarding urban green in neighborhoods and have a sense of urgency to address this.
	Behavioral internalization	Utrecht is actively trying to react to urban green injustice, with for example the current pilots in green-poor neighborhoods.

The city of Utrecht is informed of the distribution of urban green. There are different maps available showing the distribution of different urban green, including their function and characteristics. In addition, the stakeholders that were interviewed were aware of the difference quantity and quality of urban green per neighborhood. This is also why the city invest more in green-poor neighborhoods as well as in neighborhoods where the quality of the urban green is lower. An example here of is Overvecht.

The municipality is aware of the benefits that urban green can bring, for biodiversity and climate adaptation as well as health and social cohesion. For example, respondent R1 mentions:

> *"Because we see that heat has a significant impact. Heat stress occurs during summers, and it is important for health that people can quickly access green spaces for cooling."*
>
> Respondent R1 - Municipality of Utrecht

Respondent R16 believes that there has been a positive shift in the past two years regarding the awareness and understanding of the importance of green spaces, also because of the COVID-19 pandemic. Furthermore, both the policy documents and interviews revealed knowledge about health disparities among neighborhoods. Although it is not always clear whether there is a direct relationship with greenery here, it did emerge that greenery can be used as a means to reduce these differences. From the policy documents as well as the interviews it becomes clear that there is a local sense of urgency to implement green in a fair and equal way. Furthermore, the policy documents emphasize the population growth of Utrecht, which makes in necessary to improve urban greening. Additionally, the importance of including stakeholders, including citizens, in the planning, decision-making, implementing and maintenance phase is also evident from the policy documents and interviews. However, some respondents have critique that this does not happen often enough and mention ways to improve this.

Utrecht's current strategy is aimed at reducing disparities between neighborhoods, which shows that the city is trying to anticipate on this problem. According to Respondent R4, Utrecht has expressed the ambition to work on neighborhoods with low green scores. Utrecht is focusing on creating a healthy living climate, with a particular emphasis on green spaces. The city aims to grow and accommodate approximately 80,000 to 100,000 additional people in the next 20 years. To achieve this, they have developed a spatial strategy (*'Ruimtelijke Strategie 2040'*, 2021), which involves creating an extra 440 hectares of green areas in the city. Additionally, the city has enrolled in the Urban Green Challenges, as indicated by R4, which shows the willingness to learn and anticipate. Also, with the current pilots that are being done, the municipality is trying to understand how they can react to the problem and address distributional green injustice, as well as procedural and recognitional green justice. All in all, it can be concluded that there is a wide sense of awareness regarding urban green (in)justice in the city of Utrecht, especially distributional green injustice.

5.2.2 Useful Knowledge

Table 12. *Assessment Useful knowledge Utrecht*

Variable	Indicator	Assessment Remark
Useful knowledge	Informational availability	Information about urban green (in)justice, especially distributional green (in)justice is available for all stakeholders.
	Information transparency	Most information is accessible and understandable for stakeholders. However, this information can be

		abstract, which can be improved.
	Knowledge cohesion	In general, information regarding urban green is consistent among different policy fields and stakeholders. However, sometimes the link between urban green and another policy field is missing, for example well-being.

The policy documents, including strategies, environmental visions (by district), course documents and coalition agreements are openly available for everyone on the website of the municipality of Utrecht. These also include information and maps on de distribution of urban green and on participation strategies. Additionally, information on (planned) urban green projects is distributed among the stakeholders. This is done in various ways e.g. social media, face to face or posters, which is consulted with neighborhood groups since it is acknowledged that they know the residents in the particular neighborhoods the best.

It is however mentioned by a few respondents that the knowledge sharing with a broader audience, specifically the residents of Utrecht is somewhat limited and can be improved. It is addressed that not all residents are aware of ways to reach the municipality to act. Despite awareness campaigns and educational campaigns, such as 'Waterproof 030', a widespread sense of urgency about the importance of urban green has not been established yet. This is evidenced by the fact that not all residents are yet in favor of urban green space. However, the municipality is working to get residents more involved in making plans so that the importance of green space also becomes clearer. It was also mentioned a few times that while residents see the importance of greenery, they still do not want to see it in their own street because they are afraid of loitering or nuisance from the greenery, for example.

All information is written at B1 level, which makes it easy to understand. However, respondent R5 for example mentions that these policy documents are still very abstract. This still makes is harder for residents to really understand what is exactly going to happen. Therefore, the respondent suggests that it can be made more visual, for example with pictures as they did in Overvecht. Also respondent R7 highlights that details of how the green ambitions of Utrecht will be achieved are missing. The respondent feels that information is lacking and that there is a need for further clarification and coordination among involved parties to translate the ambition into a concrete plan.

Regarding knowledge cohesion, there is in general an alignment of information between different policy fields. The city aims for an integrated green approach and aligning projects with green projects. In addition, most respondents and policy documents share a

common understanding of urban green (in)justice and for example the knowledge about green-poor neighborhoods. However, in some documents, the link between health and urban green is missing. Since urban green is effective for health and well-being as well, there is sometimes a gap between these policy fields. This is also highlight by respondent R5. The respondent emphasizes the need for a connecting factor between the green initiatives and the well-being sector. They believe that the well-being sector should play a significant role in supporting and facilitating residents' initiatives, including those related to green spaces. However, currently, the focus of the well-being sector is more on issues like overweight, loneliness, crime, and talent development, rather than connecting with green initiatives.

5.2.3 Continuous Learning

Table 13. *Assessment Continuous Learning Utrecht*

Variable	Indicator	Assessment Remark
Continuous learning	Smart monitoring	Utrecht has implemented a sufficient monitoring to track various aspects related to urban green (in)justice. The municipality is actively engaged in monitoring and collecting data on different indicators and dimensions of urban green initiatives.
	Evaluation	There is a relatively limited emphasis on evaluation regarding urban green projects. However, the current pilot projects in Rivierenwijk and Noordwest are utilizing evaluation as a means to learn from the projects and enhance the implementation of urban green initiatives.
	Cross-stakeholder learning	There is a recognized need for improvement regarding cross-stakeholder learning within the municipality of Utrecht. While the city is open to interacting with other stakeholders and learning from them, there are areas where the participation process can be enhanced. Also, better knowledge sharing within the municipality is needed.

Utrecht demonstrates a clear recognition of the importance of continuous learning in their projects and initiatives. They acknowledge the need to adapt strategies based on experiences and feedback from residents and stakeholders. This is evident in the pilot projects conducted in Rivierenwijk and Noordwest, which aim to explore how to incorporate green spaces and how to learn from this. Policy documents further emphasize the municipality's monitoring efforts, particularly in assessing the quantity of green spaces. The municipality

maintains maps and records to track the status of these areas. Additionally, respondent R3 highlights the regular meetings held with the municipality to discuss ongoing development and funding options, underscoring the active monitoring of projects. The presence of smart-monitoring within the municipality is also mentioned by respondent R5. This includes the monitoring of urban green, with a focus on factors such as resident satisfaction. The respondent notes for example that the satisfaction of residents is being monitored, which is relatively high in Utrecht (75%). The respondent also mentions that a health monitor is conducted every four years, indicating a sufficient monitoring system.

Other responses to this question included the challenge of determining what specific aspects to monitor, including health-related indications. Respondent (R16) mentions that monitoring biodiversity is already a complex task, and measuring health outcomes requires considering the appropriate time frame for monitoring. For instance, if a project is completed in one year, it may be too early to observe significant changes in health outcomes the following year. Similarly, when it comes to addressing issues like loneliness, significant changes may take longer to manifest. Therefore, determining the necessary monitoring period to gather meaningful data remains a challenge for them.

Moreover, the municipality has implemented evaluation processes for their projects, such as the public consultation period for the Tree Policy and the evaluation of pilot projects. These processes allow for the collection of feedback and insights, which can inform future initiatives and improve governance practices. The evaluation is also reflected in the policy documents, looking back on implemented green projects, for example. However, interviews with a number of respondents revealed that the evaluation process is often omitted. Respondent R5 stated that there is little emphasis on project evaluation within the municipality and the need for more specific and focused evaluation.

Regarding cross-stakeholder learning, the municipality engages in collaboration with other cities and participates in discussions and knowledge-sharing sessions. This indicates a commitment to learning from the experiences and expertise of others, which can contribute to the continuous improvement of governance practices. However, respondent R3 mentions that the municipality often underestimates the level of knowledge and expertise among the residents and that this can be improved.

Based on the information provided, it can be concluded that the municipality of Utrecht demonstrates a sufficient governance capacity for continuous learning. For example, respondent R1 emphasizes the need for continuous learning from experiences and adapting strategies for future projects, considering both the municipality's vision and residents'

perspectives. However, there is still room for improvement within the municipality. The interviews revealed that the pilot projects in Rivierenwijk and Noordwest were perceived as new initiatives. However, respondent R5 pointed out that similar projects had been previously undertaken by the municipality. This suggests that there may be a challenge with institutional memory or knowledge retention within the municipality. The reference to the municipality having a "short memory" indicates a need for better documentation and knowledge management practices to ensure that lessons learned from past projects are not overlooked or repeated.

5.2.4 Stakeholder Engagement Process

Table 14. *Assessment Stakeholder Engagement Process Utrecht*

Variable	Indicator	Assessment Remark
Stakeholder engagement process	Stakeholder inclusiveness	Utrecht is actively striving to foster stakeholder engagement and inclusivity in their urban green initiatives, placing a strong emphasis on collaboration with a wide range of stakeholders. The municipality recognizes the value of involving stakeholders in decision-making processes, ensuring that their voices are heard and their perspectives are taken into account.
	Protection of core values	Since stakeholders are not always involved from the beginning of green projects, their values and perspectives may not be fully integrated into the decision-making process and outcomes. However, the city of Utrecht is actively working towards improving stakeholder participation.
	Progress and variety of options	There are consultation sessions where people can ask for amendments to already pre-made plans, showing a lack of co-creation. While these sessions provide an opportunity for stakeholders to voice their concerns and suggestions, it indicates that their involvement comes at a later stage in the decision-making process when plans have already been formulated. However, Utrecht is actively addressing this issue and taking steps to improve the level of co-creation in urban green initiatives.

As evidenced by section 4.2.1, procedural injustice is being addressed in Utrecht. The stakeholder engagement process is closely related to procedural justice. Therefore, these sections overlap, which is why this section will not go into detail. However, it can be said that the governance capacity for stakeholder engagement process is adequate, but can be improved.

In Utrecht, it is recognized that stakeholder engagement is important for among other things sense of ownership, access to resources (including social capital), and creating support for successful implementation of measures and policies regarding urban green. Stakeholder engagement is an integrated part of urban green initiatives in Utrecht. For example, the city is actively involving citizens in the pilot projects and supports resident initiatives. However, the city is dealing with some barriers regarding participation. For example, they deal with the dilemma to listen to stakeholders on the hand, and aiming to achieve their ambitions regarding urban green on the other hand.

In addition, some respondents mention that residents are not involved actively enough. They mention that the stakeholder engagement in Utrecht still consists merely of consultation sessions where people can ask for amendments to already pre-made plans, resulting in a low influence of stakeholders on the end-result and arguably lower stakeholder engagement in the implementation and maintenance phase. This results in that not all values and ideas of residents are being reflected in the decision-making process. Also, this shows that urban green initiatives are not always co-created by stakeholders. Respondent R16 mentions the need for a change in mindset and behavior within their own organization, as well as a shift towards hiring individuals with diverse backgrounds and expertise beyond technical aspects. They acknowledge the increasing importance of the social aspect in urban development and foresee a greater emphasis on it in the coming years.

The need to involve stakeholders earlier in the process is clear. Respondent R5 and R16 highlight the importance of incorporating resident involvement from the beginning of a development project. Respondent R16 emphasizes that it should be a core ambition and goal for the involved parties, rather than just an add-on, which is currently not always the case. The respondent acknowledges the lengthy duration of such projects and the need to consider the appropriate phases for engaging residents. Different strategies must be employed to involve residents effectively.

5.2.5 Management Ambition

Table 15. *Assessment Management Ambition Utrecht*

Variable	Indicator	Assessment Remark
Management ambition	Ambitious and realistic management	There are clear and realistic ambitions and goals compiled by the city regarding urban green (in)justice. Improvements can be made regarding the execution of these goals and ambitions.
	Discourse embedding	The current ambitions regarding urban green do align with the historical,

		cultural, normative, and political context of the city.
	Management cohesion	There are challenges regarding management cohesion in Utrecht. There is a need for a more integrated approach between different sectors, programs and the management system.

Utrecht's green ambitions are found to be well-embedded. The city has ambitious goals regarding urban green, which is clearly reflected in the policy documents. The municipality aims to create a more equitable distribution of green spaces throughout Utrecht, including specific targets and standards, such as 40% green coverage in each neighborhood. The goal is to enhance the quality of green spaces as well, ensuring that new additions serve multiple purposes, such as providing opportunities for walking, exercise, relaxation, and addressing the health needs of the community. Most respondents are aware of these ambitions. However, the pathways to reach this goal are yet to be formulated at a lower level. Therefore, it is not always clear how the municipality will implement these green ambitions in the city from the policy documents, which is also highlighted by some respondents. For example, one respondent explains that the municipality's overall ambition is to prioritize green spaces and make Utrecht a 'green, unless' city. They aim to add greenery wherever possible. It is however not clear what 'unless' means. This is also because green projects often need to be tailored to specific circumstances, which is emphasized by almost all respondents. Setting specific goals for Utrecht is challenging because they may not be feasible everywhere due to for example limited space. Despite the policy documents and strategies not specifically outlining how all goals should be achieved, Utrecht's ambition regarding greenery is evident.

In terms of discourse embedding, the goals and targets established by the city are aligned with the city's context. Utrecht is a relatively left city regarding politics, and the policies and focus on addressing issues in green-poor neighborhoods align with this left-leaning ideology.

There is room for improvement regarding management cohesion. Although the overall ambition of Utrecht is clear, the city is currently undergoing a transition within the organization to accommodate this new approach. While some colleagues within the municipality, for example in the mobility department, are supportive of green initiatives, others are still adjusting to this change. One respondent mentions:

"It is a relatively new phenomenon to initiate projects with a green focus, resulting in the gradual integration of more green spaces. However, adapting to this change is

challenging for a large organization like ours, so, for example, management is not yet well adjusted to that. We have now 'Samen stad maken' [Make the city together], so we actually want to motivate more people to self-manage green space. That's also pretty new. So there are ongoing internal developments within the municipality to effectively organize and implement it."

Respondent R1 - Municipality Utrecht

Also respondent R5 expresses disappointment in the lack of effective communication and knowledge sharing among different departments within the municipality. In addition, in some of the policy documents, there is an emphasis on the well-being of residents as an important ambition. However, in these specific chapters, urban green is not explicitly mentioned, even though it is widely recognized as a significant factor in promoting health and well-being. This suggests a potential gap or oversight in addressing the connection between urban green and residents' health and well-being. It highlights the need for a more comprehensive and integrated approach that recognizes the significant impact of urban green spaces on the well-being of residents. Respondent R5 also acknowledges the existing fragmentation between different sectors and expresses the need for more capacity and coordination to effectively implement the envisioned goals.

5.2.6 Agents of Change

Table 16. *Assessment Agents of Change Utrecht*

Variable	Indicator	Assessment Remark
Agents of change	Entrepreneurial, collaborative and visionary agents	The municipality provides resources to support agents of change, but there is still room for improvement to expand this opportunity to involve more stakeholders.

The role of local citizens in promoting initiatives, bringing actors together, and mobilizing requires adequate local resources that can be further enhanced. In Utrecht, these agents of change are primarily seen in small-scale neighborhood initiatives, such as individuals installing rain barrels or establishing facade gardens. However, Utrecht Natuurlijk suggests that limited citizen involvement in larger green projects is partly due to the challenges of securing funding for such endeavors.

Nevertheless, there are notable examples of success. Tuinwijzer Wagenborg has implemented measures in various neighborhoods, serving as a positive example and inspiring

other residents to take similar actions. The efforts of Tuinwijzer Wagenborg demonstrate the potential of effective citizen-led initiatives and underscore the importance of supporting and encouraging such agents of change in promoting sustainable and green practices within the community.

5.2.7 Multi-level network potential

Table 17. *Assessment Multi-level Network Potential Utrecht*

Variable	Indicator	Assessment Remark
Multi-level network potential	Room to maneuver	Stakeholders have the freedom and opportunity to address issues related to urban green (in)justice, and the municipality plays a significant role in facilitating these efforts. However, despite the available opportunities, there are barriers that hinder implementing green initiatives. One prominent barrier is the difficulty in getting things done when it comes to greening projects. These challenges can include bureaucratic processes, limited resources, complex regulations, and coordination issues.
	Clear division of responsibilities	Even though the municipality and aldermen are responsible for the city, the municipality is a large and complex organization, there is a need for intermediate stakeholders to address urban green (in)justice.
	Authority	The municipality and aldermen are responsible for urban green (in)justice.

The municipality of Utrecht appreciates initiatives from residents and other stakeholders, promoting early collaboration and shared responsibility in the public space. This indicates a willingness to provide room for citizens to participate and contribute to urban green initiatives. However, as is indicated by the respondent R7, it is sometimes hard to get something done with the municipality:

> *"No, because I was here in Kanaleneiland, with Koen, and Koen joins in and says, 'I have been working for 2.5 years to greenify a square, and I just can't make it happen.' And then I arrive at that square, […] and there is a square, I think 25x25 meters, and it is completely paved. It is totally neglected, the pavement is dirty, the benches are broken, there are three round cement objects where you could potentially play, there used to be a sandbox, but it was filled with concrete. Where does it go wrong?"*
>
> Respondent R7 - Utrecht Natuurlijk

So even though the municipality supports green initiatives, there is not always the capacity and opportunity to adequately address a green project.

The municipality is seen as responsible for maintaining the quality of green maintenance. In addition, aldermen are responsible as well for addressing urban green (in)justice. While residents are encouraged to participate, it is recognized that the municipality should provide assistance and knowledge regarding urban green. The concept of "green ambassadors" is suggested as a tool to facilitate participation in urban greening and organize the green space at the neighborhood level. These individuals, with their green experience and organization skills, can provide guidance and support to residents while ensuring the maintenance of urban green spaces.

Overall, there is a recognition of the importance of collaboration, shared responsibility, and guidance in promoting multi-level network potential in governance. The municipality acknowledges the value of citizen involvement, but also understands the need for support and oversight to ensure the successful implementation and maintenance of green projects.

5.2.8 Implementing Capacity

Table 18. *Assessment Implementing Capacity Utrecht*

Variable	Indicator	Assessment Remark
Implement Capacity	Financial resources	There are sufficient financial resources to address urban green (in)justice. However, it is noted that funds for small-scale stakeholders are not always sufficient enough for urban green initiatives.
	Policy instruments	There are several tools available that offer more insight into how various goals can be achieved. There are, however, limitations to what other stakeholders can do regarding green initiatives. Also, there is a need for more diverse participation tools.
	Statutory compliance	There are no legally binding rules of goals regarding urban green (in)justice. The municipality does have ambitions regarding urban green set out in for example the Coalition Agreement. These are not legally binding as well.

To enable actors to implement urban green initiatives, sufficient financial funds are needed. For citizens in Utrecht, taking urban green measures is financially supported by funds of the municipality. This financial support enhances actors to take actions. Respondent R3 expresses positive cooperation with the municipality and mentions that they received facilities

and resources to start their projects. This indicates that the municipality is actively involved in supporting and funding green initiatives. It is also mentioned that it is relatively easy to obtain funding for citizen-led initiatives related to urban green. However, some respondents note that the available initiatives fund is not sufficient to support their green initiatives. According to respondent R7, removing tiles, bringing in equipment, providing good soil, and addressing other requirements for creating green spaces are costly. The initiatives fund only finances up to 10,000 euros, which is not enough for some of the respondent's projects.

The Green Structure Plan (*'Groenstructuurplan Utrecht'*, 2007), the Updated Green Structure Plan (*'Actualisatie Groenstructuurplan 2017-2030'*, 2018), and the Multi-Year Green Program (*'Meerjaren Groenprogramma'*, 2019) demonstrate that there are sufficient financial resources available for green projects in Utrecht. However, it is mentioned in some interviews that there might be budget cuts, which could impact the implementation of green initiatives. Since urban green is an important objective of the municipality, this does not seem likely.

Regarding policy instruments, it is mentioned that while it is easy to quantify the costs of green spaces, the long-term benefits such as health improvements, heat stress mitigation, and water management are not always well understood or considered. This lack of clarity regarding the future benefits can result in green spaces being perceived as an expense rather than an investment. Respondent R16 acknowledges ongoing efforts to emphasize the long-term advantages of green spaces, but also notes that this can complicate the process of greening the city. Tools and guidelines are needed to address this.

Moreover, respondent R7 mentions a lack of staff capacity, which is a significant challenge to address urban green (in)justice. As a program coordinator, the respondent has limited time and resources. Additionally, they have responsibilities in various neighborhoods with numerous residents in these neighborhoods, addressing all their greening requests becomes a challenge. The initiatives fund helps alleviate some of the burden by providing resources and support for residents.

Furthermore, respondent R8 explains that there is a common belief within the municipality of Utrecht that it is possible to achieve both increased housing and more green spaces simultaneously. However, the respondent considers this belief to be somewhat misguided. It is important to acknowledge and be transparent about the trade-offs involved in such situations. While there is a high demand for housing, particularly in areas like Overvecht where there are waiting lists for social and private rental housing, meeting this demand may require the removal of trees and green spaces. Respondent R4 emphasizes the need for

municipalities to prioritize green spaces over housing or cars, although this is often not the case in practice. The respondent mentions that Utrecht is making positive progress in reducing the presence of cars in the city and creating more space for greenery.

Respondents were not aware if there is any statutory compliance, such as legislation regarding urban green. The policy documents also do not indicate whether there are any. They do talk about ambitions, but these are not legally binding.

6. General challenges and opportunities

Based on expert interviews (R4, R8, R9, and R15), several general statements, challenges and opportunities have been identified regarding urban green (in)justice.

Firstly, the correlation between lower income neighborhoods and a lack of green spaces is acknowledged. However, it should be noted that no analysis has been conducted on this matter. Nevertheless, an observation has been made that neighborhoods lacking green spaces are often socially disadvantaged. Conversely, greener neighborhoods tend to be inhabited by wealthier individuals. It is important to note that this correlation is not always a direct one-to-one relationship. For instance, city centers are often highly paved and lack green spaces, regardless of income levels. Factors such as the period of construction and the initial design of neighborhoods also play a role.

On the other hand, a paradox is mentioned: the ten most densely built neighborhoods, located in Amsterdam and Haarlem where property prices are high and wealthier individuals reside, had the least amount of greenery. This contradictory situation arises because in high-value areas, green spaces are often sacrificed for development due to their economic value. However, the same respondents (R8 and R9) also mention that newer neighborhoods, which often consist of a mix of social housing, private housing, and market-rate housing, tend to have more green spaces compared to older neighborhoods. Moreover, projects with a higher proportion of social housing and rental properties may be more financially constrained compared to projects with luxury villas. This could potentially lead to disparities in the quality of green spaces.

Furthermore, respondents mention that there is increasing awareness and knowledge availability regarding urban green and urban green (in)justice in larger cities. The focus has moved from questioning why green spaces should be included to figuring out how to incorporate them effectively. In addition, larger cities typically have access to extensive data and may be well-informed in this regard. However, the average municipality in the Netherlands lacks a comprehensive understanding of the greenness of neighborhoods. They often lack information about the amount of greenery in private gardens, focusing primarily on the green spaces they directly manage. In addition, respondent R8 states that the focus within cities is primarily on creating attractive green spaces rather than specifically targeting inequality. Overall, there is a need for better data and awareness among municipalities regarding the greenness of neighborhoods.

Moreover, the awareness regarding urban green differs per department. While some parts of the municipality may recognize the value of green spaces, there are still departments such as those involved in road infrastructure and sewage systems, who have limited appreciation for greenery. Respondent R15 highlights that it is often those working in areas related to climate adaptation, sustainability, and the social domain who understand the significance of green spaces.

Next, it is noted that there is a difference between small municipalities and larger cities. Smaller municipalities have the advantage of being more manageable and easier to navigate. Respondents explain that in smaller municipalities, it is easier to address and resolve issues that arise since the director can quickly contact the responsible warden. Besides, larger cities, despite having more expertise in-house, often struggle to navigate their own organizational complexities and get their concerns across to colleagues.

Additionally, it is emphasized that green spaces should align with the demographic composition of the neighborhood and should be aligned to the specific needs and desires of the residents.

Another challenge is the resistance from residents in certain neighborhoods who for example prioritize parking space or view greenery as a nuisance. Residents needs to be educated on urban green and its benefits in order to convince people of the importance of green spaces. Respondent R4 emphasizes that while the benefits may seem obvious to experts, it may not be so for those who are not familiar with green or climate adaptation concepts. By explaining the impact, such as how a green area can prevent waterlogging compared to a paved street, and highlighting potential risks and damages, residents can understand the value of greening projects. According to respondent R15, terms like biodiversity and climate adaptation do not resonate with the general public. However, health is an appealing topic that could potentially be a game changer. The positive effects of greenery on personal health are more relatable and can be explained to people, which provides an opportunity.

Besides, the respondents acknowledge that there is room for improvement in involving residents more effectively and allowing them to participate in green space management, and giving them the opportunity to contribute to decision-making. Also, it is noted that it can be a challenge to obtain a comprehensive range of opinions from residents, as those who as dissatisfied or have complaints are often more vocal and those that are generally content may be less inclined to express their opinions. Moreover, respondent R8 notes that some residents are more present, active, and vocal during the meetings, which are mostly high educated residents. They tend to take a more dominant role, which may overshadow the opinions of

others. Therefore, the importance of considering the diversity of residents and cultural differences within neighborhoods when planning green initiatives is emphasized. Developing neighborhood plans to take into account the population composition, including age distribution and cultural background is recommended.

Furthermore, the use of ambassadors is mentioned as opportunity to engage other residents. An example of Almere is mentioned by respondent R15, where they have a "green neighbor" program, coordinated by an individual employed by the municipality. This program involves volunteers in different neighborhoods who serve as green ambassadors, offering advice and organizing greening initiatives, such as collaborative garden makeovers. The municipality supports these efforts by providing coordination and funding.

Lastly, the respondents advocate for a specific norm or standard for urban green. While there may be requirements for a certain percentage of green space in new developments, no such demands exist for existing urban areas which results in a lack of uniformity. The respondents also confirm that municipalities are interested in having norms regarding urban green to guide decision-making and help prioritize greening efforts. Currently, there are norms and standards for aspects like parking spaces, road widths, and bike lanes, but none specifically for green spaces. Consequently, green spaces often get compromised in the face of competing requirements, resulting in a lack of sufficient greenery in urban areas. Achieving uniformity in urban green is however seen as challenging. Respondent R8 explains that not every area can accommodate such requirements and that it may not always be desired by municipalities due to maintenance and cost concerns. A balance needs to be found between the desires for urban green and the practical considerations of maintenance and budgetary constraints. Also the standards should be clear, since there is a complexity in defining and measuring these standards. The definition and assessment of norms can lead to discussions and debates, making it difficult to determine specific requirements for green spaces in different types of housing and neighborhoods.

On the contrary, respondent R4 mentions that norms are not always feasible or achievable and notes that municipalities should themselves decide on the interpretation of predefined guidelines. The respondent suggests that it might be more effective to involve residents from the beginning and collaboratively determine the green goals for specific neighborhoods, rather than relying solely on a fixed percentage. Strictly adhering to a percentage-based approach may result in adding more green spaces to already green neighborhoods, while neglecting areas that could benefit from additional greenery. However, the respondent does note that national-level intervention is needed to increase the sense of

urgency regarding urban green, especially in smaller municipalities. The respondent proposes the implementation of a green norm, particularly for new housing developments, and the establishment of a national program for green initiatives. By informing municipalities and provinces about these goals and providing guidance on how to achieve them, the respondent believes that the best approach would be a centralized effort coordinated at the national level. However, the respondent notes as well that it would be challenging to enforce a rule due to the diverse nature of neighborhoods and their different characteristics. The respondent believes that if a dedicated team from the province could develop a program to guide and raise awareness among municipalities, significant progress could be made in this area.

7. Discussion

In this Chapter, the discussion is provided. The discussion provides an answer to sub questions 2 till 4, discusses the findings of this research in the light of theoretical and practical relevance, reflects on the methodology, and recommends results for further research.

7.1 Comparison

7.1.1 Urban Green (In)justice

Rotterdam and Utrecht demonstrate a certain level of commitment towards addressing the issue of urban green (in)justice, incorporating the principles of distributional, procedural, and recognitional justice to varying extents.

Distributional green (in)justice

Even though not all respondents (3 out of the 16) linked urban greening specifically to environmental justice, both cities do possess a keen awareness of the existing disparities in terms of both quantity and quality of urban green spaces, and have access to valuable data to aid their understanding. Rotterdam in particular shows the availability of more detailed data regarding urban green (in)justice, enabling a more precise assessment. In both Rotterdam and Utrecht, it is evident that the city center and pre-war neighborhoods tend to exhibit lower levels of green spaces. It is acknowledged that these neighborhoods are often more disadvantaged, exacerbating the issue of green (in)justice.

Moreover, both cities acknowledge the relationship between urban green and variations in health outcomes among different neighborhoods. Even though it is acknowledged that this is a complex correlation, they emphasize the importance of equitable distribution of urban green to promote healthier living environments for all residents, by recognizing this correlation. Especially Utrecht recognizes this.

In both Rotterdam and Utrecht, notable efforts are undertaken to actively address distributional green injustice. Rotterdam, for example, has implemented various programs aimed at increasing the amount of urban green, among others in neighborhoods currently facing limitations in terms of green space. The city is committed to promoting inclusive adaptation climate policy, as evidenced by the implementation of the Inclusive Climate Action Rotterdam (ICAR) program. A primary objective in Rotterdam's agenda is to enhance the availability of green spaces throughout the entire city. However, the documents and interviews reviewed do

not provide a comprehensive elaboration on the specific strategies and approaches employed to address distributional green injustice.

Utrecht is actively engaged in various initiatives and programs aimed at expanding both the quantity and quality of urban green. The city is committed to ensuring that all residents have access to urban green near their homes. To achieve this, Utrecht has implemented a comprehensive approach that focuses on enhancing the accessibility of urban green by establishing recreational and ecological connections. In its process of addressing distributional green injustice, Utrecht places particular emphasis on addressing the needs of neighborhoods that currently lack sufficient green infrastructure. These areas, referred to as 'green-poor neighborhoods' are prioritized in the municipality's efforts to increase the availability of urban green. Notably, neighborhoods with a lower quality of existing greenery, such as Overvecht, are also targeted for improvement.

The analysis reveals a disparity between Utrecht and Rotterdam in terms of their emphasis on addressing inequality related to urban green spaces. Utrecht demonstrates a greater commitment to addressing this issue, as evidenced by the consistent highlighting of inequality in the documents reviewed. Almost without exception, Utrecht explicitly acknowledges the existence of disparities in urban green. In contrast, the documents of Rotterdam, including the urban vision, do not explicitly mention inequality in relation to urban green or climate adaptation. This topic is also absent from other documents concerning climate adaptation. This disparity can be explained by the local politics. Utrecht has a more left-winged city council, while Rotterdam has a more right-wined city council. This might explain these differences.

Additionally, the policy documents focused on green do not specifically address distributional green (in)justice. This indicates that Rotterdam's focus is primarily on becoming an attractive city in a broader sense, with less emphasis placed on addressing the specific issue of distributional green injustice. Stakeholders also note that the municipality of Rotterdam lacks a significant agenda for greening initiatives. Accessibility to green spaces is also not highlighted, whereas this is an important aspect of distributional green (in)justice.

Procedural green (in)justice

Regarding procedural green (in)justice, both Rotterdam and Utrecht acknowledge the significance of engaging stakeholders in urban green initiatives. Both municipalities actively collaborate with various stakeholders, including housing corporations, developers, businesses, and social entrepreneurs. Both cities value the participation of residents in efforts to make neighborhoods greener, offering opportunities for involvement and providing subsidies and

funds to support these initiatives. However, despite these efforts, there are indications in both cities that the municipalities may not be doing enough to actively involve residents in the decision-making processes related to urban green initiatives. In both cities, there is a need for more tailored approaches to involve and engage residents. Moreover, residents express a sense that their input is disregarded by authorities. For example, this was evident from a redevelopment project in Rotterdam, were there was no room for creative solutions from the residents and other local stakeholders. Therefore, residents did not see their ideas and input being valued, which is necessary for meaningful and effective participation. This suggests a gap between the aspirations for procedural green justice and the practical implementation of inclusive decision-making.

Furthermore, in both cities, it has been indicated that there is procedural green injustice, which is related to the capacity of residents to green their area. This capacity encompasses factors such as residents' access to the municipality, their connections with the right contacts, their social networks, their knowledge base, and their ability to effectively communicate with authorities. It has become apparent that some residents possess greater capacity than others to successfully initiate and carry out green projects. Particularly, residents who face additional social challenges or disadvantages often lack the opportunity to actively participate in matters concerning urban green initiatives. Local stakeholders can provide this opportunity to residents.

Although both municipalities are actively working to improve participation and foster inclusivity, there is still much progress to be made. According to the respondents, it is essential to employ diverse methods to engage residents in the decision-making processes, ensuring that a wide range of voices is heard and represented. Utrecht, in particular, demonstrates a high awareness of this necessity and is actively developing and implementing measures to address it.

Recognitional green (in)justice

Recognitional green (in)justice is not explicitly addressed in the policy documents reviewed for both Rotterdam and Utrecht. However, both municipalities do recognize the diversity of nationalities and cultural backgrounds within the city and acknowledge that different communities may have distinct needs and preferences for their neighborhoods. To address this, neighborhoods-specific area plans are developed to cater to these specific requirements. Despite this recognition, there is a need for more tailored and inclusive approaches to engage residents in the participation processes. Currently, the representation in these processes often fails to reflect the diversity of the neighborhoods.

Differences of Rotterdam and Utrecht in addressing urban green (in)justice

Summarizing and answering sub-question 2, it can be said that both Rotterdam and Utrecht demonstrate varying degrees of addressing distributional, procedural, and recognitional (in)justice in urban green initiatives. Utrecht places a greater emphasis on addressing these injustices, as evidenced by its consistent acknowledgment of disparities in urban green and prioritization of green-poor neighborhoods. In contrast, Rotterdam's documents and vision do not explicitly mention inequality or distributional green injustice, indicating a broader focus on overall city attractiveness and liveability. Factors contributing to this disparity include differences between levels of commitment, and between the municipalities' agendas and priorities. Utrecht shows a higher level of commitment to recognize and address inequities, which is reflected in its priorities and implementation agenda. Utrecht's priority on equity is consistent with its broader progressive and left-leaning political environment, while Rotterdam's focus on the overall attractiveness of the city may have been influenced by its more right-leaning political landscape.

7.1.2 Governance Capacity

Urban green (in)justice in cities demand for adequate governance capacity. The results demonstrate that overall capacity of Rotterdam and Utrecht needs improvement. In particular, stakeholder engagement process, management cohesion, and implementing capacity seem to be essential for addressing urban green (in)justice. However, still all three dimensions of governance capacity; *knowing, wanting,* and *enabling* are necessary for addressing urban green (in)justice.

Table 19.

Comparison governance capacity Rotterdam and Utrecht.

Variable	Rotterdam	Utrecht
Awareness	Community knowledge	Community knowledge
	Local sense of urgency	Local sense of urgency
	Behavioral internalization	Behavioral internalization
Useful knowledge	Informational availability	Informational availability
	Information transparency	Information transparency
	Knowledge cohesion	Knowledge cohesion
Continuous learning	Smart monitoring	Smart monitoring
	Evaluation	Evaluation
	Cross-stakeholder learning	Cross-stakeholder learning
Stakeholder engagement process	Stakeholder inclusiveness	Stakeholder inclusiveness
	Protection of core values	Protection of core values

	Progress and variety of options	Progress and variety of options
Management ambition	Ambitious and realistic management	Ambitious and realistic management
	Discourse embedding	Discourse embedding
	Management cohesion	Management cohesion
Agents of change	Entrepreneurial, collaborative and visionary agents	Entrepreneurial, collaborative and visionary agents
Multi-level network potential	Room to maneuver	Room to maneuver
	Clear division of responsibilities	Clear division of responsibilities
	Authority	Authority
Implementing capacity	Financial resources	Financial resources
	Policy instruments	Policy instruments
	Statutory compliance	Statutory compliance

Note. Green means sufficient, orange means needs improvement, and red means poor.

Table 19 provides an overview of the governance capacities of Rotterdam and Utrecht to address urban green (in)justice. As shown, Utrecht scores slightly better than Rotterdam.

Both cities are ***aware*** of urban green (in)justice and have sufficient level of community knowledge in this regard. Maps are available showing geographical features and challengers per neighborhood. Utrecht has more maps available regarding urban green, however, Rotterdam has more detailed maps about issues related to urban green, such as pavement or heat stress. Utrecht's policy documents show much more clearly that the green city is an important pillar. For example, in the table of contents of Rotterdam's city vision, greenery does not appear, while in Utrecht's strategy, "the green city" is a separate chapter. In addition, whereas Utrecht has extensive policies to address urban green space inequality, Rotterdam outsources this more to local parties, such as Tussentuin and Buurtklimaatje.

Both Rotterdam and Utrecht have implemented a range of tools and resources aimed at making ***knowledge*** about urban green accessible to diverse target groups. These include the use of climate neighborhood maps, online toolkits, videos, workshops, and informative websites. However, Rotterdam faces challenges such as a lack of knowledge regarding participation processes, potential information loss due to staff turnover, the complexity of urban green processes, language barriers (e.g. immigrants, expats and refugees), and difficulties with forms, which can impede the availability and transparency of knowledge. Similarly, some stakeholders in Utrecht acknowledge the difficulty of reaching the municipality for green initiatives. Furthermore, some stakeholders recognize that documents can be abstract, which poses a challenge for residents and other stakeholders in understanding the practical implications of planned actions, strategies, and policies. To address these issues,

both cities are actively working on implementing more accessible methods and striving for transparency.

In terms of knowledge cohesion, both cities demonstrate a general alignment of information across different policy fields. However, in Utrecht, there is a mention of a potential gap in linking urban green initiatives with health aspects, suggesting an area for improvement in integrating these two domains more effectively.

Regarding ***continuous learning***, both Rotterdam and Utrecht show a comprehensive monitoring system. However, there is still a need to strengthen the evaluation process to ensure that urban green initiatives are thoroughly assessed and improved over time. Besides, there is a capacity gap regarding evaluation. There is not a sufficient system that includes the qualitative findings. The system is now mostly focused on quantitative findings, which means that positive outcomes of urban green such as social cohesion are not included in calculations. This is because these qualitative factors are difficult to measure. Additionally, there is a recognized need for improvement regarding cross-stakeholder learning within the Rotterdam and Utrecht. While both cities are open to interacting with other stakeholders and learning from them, there are areas where the participation process can be enhanced.

Both Rotterdam and Utrecht show a recognition of the importance of ***involving stakeholders*** in urban green initiatives. However, there is a need to improve the level of engagement, co-creation, and incorporation of stakeholders' values and ideas into the decision-making process. Residents in Rotterdam and Utrecht are currently insufficiently engaged in the local decision-making processes. There is a lack of awareness regarding participation and an inability to engage a wider and more representative range of groups, which is where the capacity gap exists in terms of green initiatives. Improving communication, simplifying processes, and diversifying participation are areas that can further enhance cities efforts to address urban green (in)justice.

The ***management ambitions*** of Rotterdam and Utrecht regarding urban green (in)justice show both similarities and differences. Both cities have ambitious goals for urban greening. However, Rotterdam places a strong emphasis on climate adaptation and economic activities, while Utrecht prioritizes equitable distribution and quality enhancement of green spaces. These different focuses are aligned with the political context of the cities. While Rotterdam is more right-winged, the majority of Utrecht is left-winged. This could explain the different goals. Regarding management cohesion, both cities face several challenges. Overall, there is a need for a more integrated approach of urban green between different sectors, programs and the management system.

The governance capacity in Utrecht and Rotterdam highlights both positive aspects and areas for improvement in supporting agents of change for urban green. Both cities demonstrate efforts to support and empower ***agents of change***. Rotterdam, in particular, utilizes local organizations to implement urban green initiatives at the neighborhood level. However, there is still room for improvement in terms of resource accessibility and funding mechanisms.

Regarding the ***multi-level network potential***, Rotterdam and Utrecht demonstrate a mixed picture. One the one hand, stakeholders have the freedom and opportunity to take action and address issues related to urban green (in)justice, for which the municipality provides facilitation and support. On the other hand, local stakeholders operate within the framework and guidelines established by the municipality, which can impose certain limitations and regulations, particularly in Rotterdam. Furthermore, despite the responsibility of the municipality and aldermen for the city and urban green (in)justice, the size and complexity of the municipality as an organization can sometimes lead to challenges in clearly identifying who is accountable for specific tasks. One of the consequences of this complexity is the frequent turnover of key actors in neighborhoods, such as neighborhood networkers. Also, one prominent barrier is the difficulty in implementing greening projects, which is caused by bureaucratic processes within the municipality, causing green projects to be lengthy and requiring actors to navigate through multiple layers of the municipality.

Lastly, in both cities the ***implementing capacity*** needs to be improved. This capacity can be seen as a key driver for urban green (in)justice, as without implementing capacity the green ambitions cannot be carried out. Regarding financial resources, it is mentioned that, particularly in Rotterdam, there seem to be financial constraints. This is not confirmed by all stakeholders, with some even stating the opposite. It is expected that the financial resources do not impose problems to address urban green (in)justice. Additionally, local stakeholders note that the funding for urban green initiatives is not sufficient to cover all the costs. This limits the range of movement of stakeholders.

Both cities do mention a lack of staff capacity, which can also impose challenges in addressing urban green (in)justice. The cities do have tools available that provide insights into how the urban green goals can be achieved. These tools can also help stakeholders understand the complex dynamics of urban environments, assess the potential impacts of green initiatives, and develop strategies for their successful implementation. However, it is important to acknowledge that there are limitations to what stakeholders, other than the municipality, can accomplish in this regard, due to the aforementioned regulatory barriers. Regarding statutory compliance, there is no legislation regarding urban green (in)justice. The municipalities have

set some ambitions and goals, but these are not binding. Experts do advocate for specific norms or standard for urban green.

Summarizing and answering sub-question 3 and 4, the governance capacities of Rotterdam and Utrecht do not score sufficient to address urban green (in)justice. Utrecht seems to have a better capacity, which is caused by a better awareness of urban green (in)justice. This results in a slightly better *wanting* dimension of the municipality. However, local stakeholders seem to be equally aware and motivated to address urban green (in)justice. Also, the better score of Utrecht of the *knowing* condition, does not result in better networks, resources, or tools to carry out their goals. Both municipalities and local stakeholders seem to be dealing with the same challenges and barriers.

7.2 Limitations and further research

This study also revealed some limitations, as well as recommendations for further research, which are discussed in this section.

The outcome of the governance capacity analysis emphasized the role of citizen engagement in addressing urban green (in)justice. Since this research is based on a literature review and on expert interviews, an assessment of how citizens consider their role in addressing urban green (in)justice is not accounted for. As such, a suggestion for further research is to execute an in-depth study that explicitly includes citizens, for example through surveys. This will be relevant to further substantiate the findings related to citizen engagement.

The research covered two cities, but lacked a more in-depth analysis of specific neighborhoods or districts. This limitation prevents a comprehensive representation of the entire city, whereas important key stakeholders may have been missed. Future studies could focus on specific neighborhoods to gain a more complete understanding of how urban green (in)justice is addressed within different local contexts.

The analysis of policy documents was conducted at a broad level, encompassing a wide range of documents. This approach may have limited the ability to draw specific conclusions about how urban green (in)justice is addressed in practice, as the policy documents tend to be comprehensive and lack specific details. Future research could consider conducting document analyses on a smaller scale, such as focusing on specific neighborhoods or specific policy initiatives, to gain deeper insights into the actual implementation strategies.

The assessment of governance capacity was conducted using a qualitative approach, which may limit the ability to make definitive statements about the adequacy of the capacity.

Clear guidelines or criteria could be developed to provide more objective assessments of governance capacity in future studies.

In addition, urban green experts advocated for urban green standards. There are, however, various challenges relating to this. Further research can study the implementation of urban green standards and its challenges and barriers.

Lastly, some aspects of the governance capacity framework were less clear and could use further clarification. For example, there was some overlap between the concepts of cross-stakeholder learning and management cohesion, which could be better analyzed and defined to ensure more precise measurements and assessments. Further research can finetune the GFC for urban greening.

8. Conclusion

8.1 Reflections on the main research question

This research aimed to assess the extent to which environmental (in)justice is addressed in urban green initiatives in Rotterdam and Utrecht, as well as the contribution of the governance capacity of both cities in addressing this issue. Therefore, the following research question will be answered: *"To what extent is environmental (in)justice addressed in urban green initiatives in Rotterdam and Utrecht and to what extent does the governance capacity of Rotterdam and Utrecht contribute to addressing environmental (in)justice in urban green initiatives?".* The findings shed light on several key aspects.

Both Rotterdam and Utrecht exhibit a certain level of commitment to addressing urban green (in)justice. They recognize the existing disparities in terms of quantity and quality of urban green, particularly in older built neighborhoods. Also, both cities recognize the significance of engaging stakeholders in urban green initiatives. Both cities have implemented various initiatives and programs to address urban green (in)justice. Utrecht demonstrates a greater commitment by explicitly highlighting inequality in its documents and consistently acknowledging disparities in urban green. In contrast, Rotterdam's documents and vision do not explicitly mention inequality or distributional green injustice, but shows a broader focus on overall city attractiveness and liveability. In addition, there are indications that more action is needed to actively involve residents in decision-making processes, as residents feel that their input is disregarded by authorities, which was noted by the respondents. This suggests a gap between the aspirations for procedural green justice and its practical implementation. In terms of recognitional green (in)justice, neither Rotterdam nor Utrecht explicitly address it in their policy documents. However, both cities recognize the diversity of nationalities and cultural backgrounds within their populations and acknowledge the distinct needs and preferences of different communities. They develop neighborhoods-specific area plans to cater to these requirements. Nevertheless, there is a need for more tailored and inclusive approaches to engage residents in participation processes, as the current representation often fails to reflect the diversity of neighborhoods.

Overall, both cities are making commendable efforts in addressing urban green (in)justice. However, it is worth noting that while the cities have well written strategies, the assessed policy documents lack specific measures for implementing these strategies. Additionally, it is important to highlight that the green strategies themselves are relatively

recent additions. As a result, the forthcoming years will determine whether the strategies concerning urban green (in)justice are effectively put into practice.

Furthermore, the governance capacity of both Utrecht and Rotterdam does contribute to addressing environmental (in)justice in urban green initiatives. Regarding urban green (in)justice, Utrecht scores a bit higher on the governance capacity. However, this does not significantly result in different outcome. Nevertheless, the *knowing* dimension of Utrecht shows that Utrecht focuses more on inequality than Rotterdam. Still, the other conditions, *wanting* and *enabling*, are equally important to enable effective change.

8.2 Theoretical reflection and key insights

The results of this research seem to be well-aligned with other studies of urban green (in)justice. However, research on all three aspects of green (in)justice and the relation to governance capacity has not been addressed in previous studies. Therefore, this research provides new insights in urban green (in)justice in the Netherlands, as well as new insights into how governance capacity relates to this.

Scholars such as Greene et al. (2018), Kruize et al. (2019), and Grant et al. (2022) have demonstrated that there is an inequality in access to urban green spaces. This research also highlights the recognition that variations in urban green exist across neighborhoods in Rotterdam and Utrecht. In addition, studies like the one conducted by Kruize et al. (2019) establish a correlation between urban green and household income. Although this research does not necessarily acknowledge a direct relationship between urban green and neighborhood income, the results do indicate that this association is more related to the construction era of the neighborhood. For example, pre-war neighborhoods and city centers tend to have less green space compared to newly developed areas. However, it is recognized that older working-class neighborhoods may have a higher concentration of low-income residents and consequently less greenery. This has led to the term "green-poor neighborhoods" being used by the municipality to describe such areas, which is evidenced in the *'Actualisatie Groenstructuurplan 2017-2030'* (2018), for example.

In addition, it is acknowledged that the quality of urban green is lower in neighborhoods with a lower socioeconomic status, which is in line with research by Jennings et al. (2017), De Haas et al. (2021), and Grant et al. (2022). This is caused by challenges regarding the capacity of residents. Residents in such neighborhoods are facing various pressing issues, resulting in

limited resources to maintain urban green. Also, the paved or poorly maintained environment is perceived as normal, which lowers the incentive to address this.

Moreover, the literature on environmental justice highlights that distributional injustice is closely linked to procedural and recognitional injustices. According to Schlosberg (2007), distributional injustice is often the physical manifestation or outcome of these underlying injustices. In the context of urban greening, this relationship between distributional, procedural, and recognitional injustices is also observed and supported by the findings of this research. The exclusion of certain stakeholders from decision-making processes, the lack of diverse participation, and the failure to recognize and address the specific needs and identities of communities can lead to unequal distribution of urban green spaces and their associated benefits. This not only perpetuates existing disparities but also hampers the potential of urban greening initiatives to contribute to environmental justice goals. To address these interrelated injustices, it is crucial to adopt a more holistic approach that considers distributional, procedural, and recognitional aspects in relationship with urban greening planning and implementation.

Furthermore, Wolch et al. (2014) and Wüstemann et al. (2017) mention that the provision of urban green is increasingly recognized as an environmental justice issue. However, the results of this research and the feedback from the respondents reveal that only 13 stakeholders initially acknowledge this. The lack of universal recognition among stakeholders may stem from various factors. There may be a limited understanding of the concept of environmental justice and its application to urban green spaces. Even though stakeholders are aware of the inherent social, economic, and health disparities that result from unequal access to and distribution of urban green, the link to environmental (in)justice was not always made before the interview. Also, differing perspectives and priorities among stakeholders can contribute to the variation in their recognition of urban green as an environmental justice issue. Stakeholders may have different interests, ranging from economic development and urban revitalization to community well-being and social equity. Consequently, the extent to which they perceive and prioritize environmental justice concerns in urban green planning and decision-making can vary significantly.

Regarding procedural green (in)justice, it is evident that vulnerable and marginalized groups are often underrepresented in decision-making processes, as highlighted by Rutt and Gulsrud (2016). Their findings align with the results of this research, which can be explained by the capacity limitations of residents and the lack of participation knowledge of the municipalities. Furthermore, Grant et al. (2022) identified ‘community

engagement/involvement' and 'public education' as important sub-themes of procedural justice. These concepts were also identified as significant components for ensuring procedural justice. Nesbitt et al. (2018) suggest organizing community meetings, stewardship opportunities, and tree-related events in a manner that allows all residents, regardless of socio-economic status, cultural background, language, or schedule, to participate. Grant et al. (2022) further highlight the need for tailored communication channels. These findings corroborate the outcome of this research, further supporting the importance of inclusive and accessible engagement strategies to promote procedural justice in urban green initiatives.

Moreover, in the study conducted by Grant et al. (2022) recognitional justice themes were not extensively discussed in urban green management plans in the USA. Similarly, in this research, the concept of recognitional green (in)justice was not explicitly mentioned in the policy documents or interviews. However, the collected data did acknowledge the diversity of cultures and types of residents, indicating a need to tailor strategies and projects accordingly. This aligns with the characteristics of recognitional justice found in the literature.

Recognitional justice refers to the fair representation of stakeholders within, and equitable power over decision processes, according to Langemeyer and Connolly (2020). Equitable power was not highlighted in this research. When talking about resident's participation and engagement, it was recognized that not all residents were represented in the decision-making process. Also, it was mentioned that some residents raise their voices more than others. However, whether certain groups have less power within the participation process has not specifically been addressed. This could stem from the fact that the Netherlands is a democratic country. In this research, the focus was more on whether residents were included in decision-making processes, rather than examining whether certain residents had less power to influence those processes. While it was acknowledged that there are different types of residents with diverse needs, preferences, and identities, the specific power dynamics within the decision-making process were not thoroughly explored. Therefore, the understanding of recognitional justice in this research pertained more to individual recognition and representation, rather than examining the structural power imbalances among residents. Also, from the data it remains unclear how the municipalities specifically address these aspects in relation to urban green initiatives.

Recognition, as an integrative element of justice, has a significant influence on the distribution of resources and the fairness of procedures (Rutt & Gulsrud, 2016). If certain groups are misrepresented, it can result in unjust choices (Jenkins et al., 2016). Moreover, a lack of recognitional justice not only leads to an unfair distribution of costs and benefits, but

also diminishes people's participation in decision-making processes, which is a fundamental condition for environmental justice (Schlosberg, 2004; George & Reed, 2017). The findings of this research align with the broader understanding of the importance of recognitional justice in promoting equitable and inclusive urban green practices.

In addition to examining urban green (in)justice, this research also aimed to assess the governance capacity of Rotterdam and Utrecht and its role in addressing urban green (in)justice. In contrast to the aforementioned findings that confirm the outcomes of previous research, this study introduces a novel aspect to the literature on urban greening. Also, it provides new insights to literature on governance capacity.

To assess the governance capacity, the Governance Capacity Framework [GCF] by Koop et al. (2017) has been used, as well as additional literature of scholars that implemented or analyzed aspects that are included in the GCF, such as Raaijmakers et al. (2008), Adger et al. (2009), Pahl-Wostl (2009), Gifford (2011), and Van Rijswick et al. (2014). While the GCF has previously been utilized to assess a city's ability to manage water challenges, this research applied it for the first time in the context of urban green. The GCF methodology offers a comprehensive assessment by integrating various governance dimensions and identifying gaps in the city's capacity to effectively address urban green (in)justice. By utilizing this framework, this research aimed to uncover both the barriers and opportunities that exist within the governance structures of Rotterdam and Utrecht. This approach allowed for a comprehensive understanding of the cities' current position in governing urban green (in)justice. The applied methodology encompassed a combination of policy reviews and in-depth interviews with a diverse range of local stakeholders and experts in the field of urban green, which ensured a comprehensive and multi-faceted analysis of the governance capacity and its implications for addressing urban green (in)justice. The use of the GCF methodology not only enabled a rigorous analysis, but also ensured reproducible results. This is crucial for ensuring the validity and reliability of the research findings. However, the GCF also had some limitations. In other studies, the governance capacity was measured by a quantitative assessment. In this research, the governance capacity was qualitatively assessed, as the operationalization was sometimes still open for different interpretations and views. Also, not all relevant stakeholders and documents have been assessed due to the scope of this research. Still, the findings of this research offer valuable insights for planners and policymakers at a local level. By identifying the barriers and opportunities within the governance capacity, this research provides a foundation for informed decision-making and policy development.

All in all, both Rotterdam and Utrecht are implementing urban green as a climate adaptation strategy, but also as a strategy to address other issues, such as health related issues (e.g. obesity), welfare related issues (e.g. stress, depression), and economy related issues (e.g. migration). The concept of urban green (in)justice is relatively new, reflecting the evolving perception of green spaces from being seen as dirty and a waste of space, to their current recognition as valuable assets. This is also evident from literature, since only recent studies address this concept (Calderón-Argelich et al., 2021). Currently, Rotterdam and Utrecht are in a transition to accommodate this new approach, which entails barriers and challenges, but also opportunities.

As G4 cities, Rotterdam and Utrecht serve as representative cases, although it should be acknowledged that smaller or less resourced cities may face different experiences and challenges. Nevertheless, the findings from this research can be applied to other large cities, considering their similar capabilities, shared climate change challenges, and the growing significance of urban green for addressing environmental issues and improving public health and well-being. Additionally, since it is expected that climate change will further continue, resulting in more extreme weather conditions, urban green (in)justice will also become more prevailing in the coming years. Important to note is that not all cities have the same building structure, which can result in different outcomes regarding distributional green (in)justice. Still, research conducted in different countries, such as Australia, Bulgaria, South-Africa, and the USA (Nesbitt et al., 2018; Tozer et al., 2020; Coffey et al., 2022; Threlfall et al., 2022), show similar results as found for Rotterdam and Utrecht. Therefore, the findings of this research can also serve other countries.

Furthermore, this research sheds light on the relation between governance capacity and urban green (in)justice. As mentioned before, the findings demonstrate that the level of governance capacity influences the extent to which urban green (in)justice is addressed. Therefore, assessing the governance capacity in relation to urban green (in)justice can provide valuable insights and practical recommendations. In addition, city planners and developers can also use the GCF themselves to assess the governance capacity. Therefore, more research should be conducted on this topic.

Looking ahead, inclusive decision-making processes and resident engagement in urban green initiatives remain crucial challenges. Empowering residents, overcoming capacity barriers, and fostering meaningful participation are essential for bridging the gap between aspirations for urban green justice and its practical implementation. Strengthening governance capacities should be a continued focus, building upon the progress made thus far. Rotterdam

and Utrecht exemplify best practices in addressing environmental (in)justice in urban green initiatives, making them valuable case studies. By sharing experiences, exchanging best practices, and fostering collaboration in research and initiatives, these cities can contribute significantly to the advancement of environmental (in)justice in urban green projects. By collectively addressing these challenges, cities can create a more equitable and sustainable future, ensuring that access to urban green space is available to all residents and communities and brings benefits to society as a whole.

8.3 Practical recommendations

To address the challenges found for Rotterdam and Utrecht and enhance environmental (in)justice in urban green initiatives, the following practical recommendations are proposed for cities, specifically for Rotterdam and Utrecht. These cities should:

- Establish a robust evaluation framework: cities should establish a comprehensive evaluation framework to assess the effectiveness and the impact of its urban green initiatives. This framework should include clear evaluation criteria, appropriate indicators to measure success, and mechanisms to gather feedback from stakeholders and the community. Regular evaluations will provide valuable insights for identifying areas that require adjustment or further investment, allowing the city to continuously improve its efforts in creating sustainable and equitable urban green spaces;
- Employ diverse methods to engage residents: cities should actively seek for and employ a variety of methods to engage residents in decision-making processes related to urban green initiatives. This can include town hall meetings, community workshops, BBQs, online platforms, and targeted outreaches to ensure that a wide range of voices and perspectives is heard and represented;
- Adopt culturally sensitive approaches: related to the above mentioned recommendation, cities should develop strategies that take into account the cultural diversity and varied perspectives within their communities. This may involve conducting community assessments, engaging with community leaders, and actively seeking input from residents representing different nationalities and cultural backgrounds. By fostering a genuine understanding of community needs and preferences, the municipalities can design more effective and inclusive approaches to urban green initiatives;
- Implement local green ambassadors at the neighborhood level: cities can benefit from the establishment of local green ambassadors who act as liaisons between the residents

and the municipalities. These ambassadors, selected from within the community, can serve as advocates for urban green initiatives and facilitate communication and collaboration between residents and local authorities. By having a dedicated point of contact at the neighborhood level, residents can feel more empowered and have their concerns and ideas directly communicated to the relevant decision-makers, fostering a sense of ownership and inclusion in the greening process;

- Shift the perspective on participation: cities should recognize that residents are already engaged and willing to participate in shaping their communities. Municipalities should actively support and amplify resident initiatives by providing resources, expertise, and platforms for collaboration. By embracing this perspective, cities can foster a more inclusive and empowering environment where residents' expertise and contributions are valued;
- Give residents more freedom to implement green initiatives: cities should consider providing residents with more freedom and flexibility to implement their own green initiatives within their neighborhoods. This can be done by simplifying administrative procedures, reducing bureaucratic hurdles, reduce regulatory barriers, and offering guidance and support in navigating the necessary permits and regulations. By empowering residents to take the lead in implementing green projects, such as community gardens, pocket parks, or urban tree planting, the municipalities can tap into the creativity and resourcefulness of the communities, while promoting a sense of pride and stewardship;
- Collaborate and share best practices: Rotterdam, Utrecht, and other cities in the Netherlands should actively collaborate and share best practices regarding addressing environmental (in)justice in urban green initiatives. By learning from each other's experiences and pooling resources and knowledge, cities can collectively advance their efforts and work towards creating more equitable and sustainable urban environments.

By implementing these recommendations, cities, in particular Rotterdam and Utrecht, can make significant progress in addressing environmental justice in urban green initiatives, ensuring that access to and benefits from urban green spaces are equitably distributed among all residents.

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Appendix A: Operationalization

Table A.

Operationalization Urban Green (In)justice

Variable	Indicator	Measure	Key authors and sources
Urban green (in)justice	Distributional (in)justice	To assess distributional (in)justice, the following measures were considered: 1. The distribution of urban green: it is important to evaluate the amount and location of urban green in different areas of the city. This involves examining the geographic distribution of greenery within the city and whether there are certain areas that have more or less greenery than others. 2. Accessibility of urban green: it is important to look at the accessibility of urban greenery in different parts of the city. This involves the distance to green space and the availability of green space. 3. Quality of urban green: It is important to look at the quality of urban green in different parts of the city. This involves examining the condition of the greenery, the level of maintenance, and the perceived quality, such as safety, and playgrounds.	Jennings et al., 2017; Nesbitt et al., 2018; De Haas et al., 2021; Grant et al., 2022
	Procedural (in)justice	Procedural (in)justice of urban green refers to the fair and just process of decision-making around the planning, design, construction, maintenance, and use of green spaces in urban areas. It concerns whether different stakeholders are fairly involved in the process and whether decisions made are in line with the needs and interests of the community. To assess procedural (in)justice, the following measures were used: 1. Participation: to what extent have all stakeholders the opportunity to participate in the decision-making process? For example, public meetings, hearings, surveys 2. Transparency: To what extent is the decision-making process transparent and understandable to the community? Is information about the	George & Reed, 2017; Nesbitt et al., 2018; Grant et al., 2022

		process and decisions made publicly available and easily accessible for all stakeholders? 3. Equality: To what extent are different stakeholders treated equally and are their views and interests taken seriously? Are the needs of minorities or vulnerable groups in the community taken into account in the process?	
	Recognitional (in)justice	Recognitional (in)justice of urban green is about the fair and just recognition of diverse communities. It concerns whether the different needs, values, and experiences of these communities are acknowledged and respected in the development and management of urban green spaces. Measures that were used were: 1. Representation: To what extent are all communities and their perspectives represented in the decision-making process around urban greening? Are their voices heard and taken into account in the planning and management of green spaces? 2. Inclusivity: To what extent are urban green spaces designed and managed in a way that is inclusive of diverse communities, including those with different abilities and socio-economic backgrounds?	Jenkins et al., 2017; Rutt & Gulsrud, 2016; Meerow et al., 2019; Nesbitt et al., 2019; Langemeyer & Connolly, 2020; Zhu & Lo, 2021; Grant et al., 2022

Table B.

Operationalization Governance Capacity

Variable	Indicator	Measures	Key authors and sources
Awareness	Community knowledge	What is the level of public knowledge regarding urban green (in)justice?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Local sense of urgency	To what extent do stakeholders have a sense of urgency to address urban green injustice?	
	Behavioral internalization	To what extent do stakeholders try to understand, react and anticipate in order to address urban green (in)justice?	
Useful knowledge	Informational availability	To what extent is information on urban green (in)justice readily available for stakeholders?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Information transparency	To what extent is information on urban green (in)justice accessible and understandable for interested stakeholders, including experts and non-experts?	
	Knowledge cohesion	To what extent is information about urban green (in)justice consistent amongst different policy fields and stakeholders?	
Continuous learning	Smart monitoring	To what extent is the monitoring of process, progress, and policies able to improve the level of learning (i.e., to enable rapid recognition of alarming situations, identification, or clarification of underlying trends)?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Evaluation	To what extent is current policy and implementation regarding urban green (in)justice continuously assessed, evaluated, and improved?	
	Cross-stakeholder learning	To what extent are stakeholders open to and have the opportunity to interact with other stakeholders and deliberately choose to learn from each other?	
Stakeholder engagement process	Stakeholder inclusiveness	To what extent are all relevant stakeholders able to join any decision-making process concerning urban greening? Are the engagement processes transparent and are stakeholders able to speak on behalf of their interest group?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Protection of core values	To what extent do stakeholders have the opportunity to be actively involved and do they have the feeling that their core values are reflected in the decision-making process and outcome?	

	Progress and variety of options	To what extent are a variety of alternatives co-created by stakeholders and thereafter selected from?	
Management ambition	Ambitious and realistic management	To what extent are goals for urban green (in)justice ambitious and yet realistic (supported by realistic intermittent targets)?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Discourse embedding	To what extent are ambitions regarding urban green (in)justice interwoven in the historical, cultural, normative, and political context of the city?	
	Management cohesion	To what extent do policies relevant for urban green (in)justice align with the dominant values, discourses, and principles?	
Agents of change	Entrepreneurial agents	To what extent are entrepreneurial agents of change able to gain access to resources, seek and seize opportunities and have an influence on decision-making regarding urban green (in)justice?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Collaborative agents	To what extent are stakeholders enabled to engage, collaborate with, and connect business, government, and civil society actors in order to address urban green (in)justice?	
	Visionary agents	To what extent are visionary actors able to effectively push forward and manage long-term integrated strategies for urban green (in)justice?	
Multi-level network potential	Room to maneuver	To what extent do actors have the freedom and opportunity to develop a variety of innovative approaches and fit-for-purpose partnerships that can adequately address urban green (in)justice?	Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Clear division of responsibilities	To what extent are responsibilities clearly formulated and allocated, in order to effectively address urban green (in)justice?	
	Authority	To what extent are legitimate forms of power and authority present that enable long-term, integrated, and sustainable approaches for implementing urban greening?	
Implementing capacity	Financial resources	Are there enough economic resources to address urban green (in)justice?	Mees & Driessen, 2011; Koop et al., 2017; Madonsela et al., 2019; Ddiba et al., 2020
	Policy instruments	To what extent are policy instruments	Koop et al., 2017;

		effectively used and evaluated, in order to address urban green (in)justice?	Madonsela et al., 2019; Ddiba et al., 2020
	Statutory compliance	To what extent is legislation and compliance, well-coordinated, clear and transparent and do stakeholders respect agreements, objectives, and legislation?	

Appendix B: Selected Documents

Document analysis

Year	Document	Translation	Source
Rotterdam			
2022	Rotterdam gaat voor groen 2018-2022	Rotterdam embraces green 2018-2022	https://rotterdam.raadsinformatie.nl/document/11037412/1/
2007	Stadsvisie Rotterdam 2030	Urban vision Rotterdam 2030	https://e15rotterdam.nl/pdf/2007_Stadsvisie-Rotterdam-2030.pdf
2013	Rotterdamse Adaptatie Strategie	Rotterdam adaptation strategy	https://ruimtelijkeadaptatie.nl/publish/pages/120068/edepotlink_t54902ab0_001.pdf
2016	Nota Gezondheidsbeleid 2016-2019	Health policy document 2016-2019	https://rotterdam.raadsinformatie.nl/document/3835200/2/16bb5349_Nota_Publieke_Gezondheid_2016-2020
2019	De Groenblauwe Groeidiamant	The green-blue growth diamond	https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiDqZ3G66b-AhUJzaQKHYMbDi0QFnoECA0QAQ&url=https%3A%2F%2Fedepot.wur.nl%2F546173&usg=AOvVaw39hwvnPxdIh3-YdTzm5H5g
2022	Coalitieakkoord 2022-2026	Coalition agreement 2022-2026	https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiDqZ3G66b-AhUJzaQKHYMbDi0QFnoECAwQAQ&url=https%3A%2F%2Fopenrotterdam.nl%2Fwp-content%2Fuploads%2F2022%2F06%2FCoalitieakkoord-2022-2026_Een-Stad_Rotterdam.pdf&usg=AOvVaw2zLTYDeylxvL7o3EdBBvrq
n.d.	Rotterdam's Weerwoord Uitvoeringsagenda 2020-2022	Rotterdam's Weerwoord Implementation Agenda 2020-2022	https://www.google.nl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiDqZ3G66b-AhUJzaQKHYMbDi0QFnoECDYQAQ&url=https%3A%2F%2Frotterdamsweerwoord.nl%2Fapp%2Fuploads%2F

			2021%2F01%2FUitvoeringsagenda-2020-2022.pdf&usg=AOvVaw11xyhv7855to9nTDRFp3Qm
2019	Rotterdamse klimaataanpak	Rotterdam Climate Action Plan	https://vng.nl/sites/default/files/2019-11/rdam-klimaatakkoord_plan_van_aanpak.pdf
n.d.	Programma kader Rotterdams Weerwoord	Framework program Rotterdam's Weerwoord	https://gemeenteraad.rotterdam.nl/Agenda/Document/49576601-c10c-43b4-889b-64d70f930ccf?documentId=9cc0ae34-52c8-4f9f-a50e-8c55266d3448&agendaItemId=3162b320-9c75-46bb-9596-d954ed1e47ce
2016	Woonvisie Rotterdam: koers naar 2030, agenda tot 2020	Housing Vision Rotterdam: path to 2030, agenda to 2020	https://rotterdam.notubiz.nl/document/3629537/1/document
	Utrecht		
2007	Groenstructuurplan Utrecht	Green Structure Plan Utrecht	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/thematisch-beleid/groen/2007-05-groenstructuurplan.pdf
2018	Actualisatie Groenstructuurplan 2017-2030	Update of Green Structure Plan 2017-2030	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/thematisch-beleid/groen/2018-03-actualisatie-groenstructuurplan-2017-2030.pdf
n.d.	Coalitieakkoord 2022 - 2026	Coalition agreement 2022-2026	https://www.utrecht.nl/bestuur-en-organisatie/college-van-b-en-w/coalitieakkoord/
2019	Meerjaren Groenprogramma: Ruimte voor Groen 2020-2023	Multi-Year Green Program: Space for Green 2020-2023	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/thematisch-beleid/groen/2019-12-meerjaren-groenprogramma-uitvoeringsprogramma-2020-2023.pdf
2021	Utrecht Dichtbij de tienminutenstad; Ruimtelijke Strategie Utrecht 2040	Utrecht Close to the Ten-Minute City; Spatial Strategy Utrecht 2040	https://utrecht.bestuurlijkeinformatie.nl/Agenda/Document/dedcc939-ae80-46dc-a5b4-c980f12c082b?documentId=4362ead0-fb95-4aa5-a3fe-05bea0682fcb&agendaItemId=07474971-31c5-490a-b44b-

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2020	Koersdocument: leefbare stad en maatschappelijke voorzieningen	Path document: livable city and social amenities	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/koers/2020-03-koersdocument-leefbare-stad-en-maatschappelijke-voorzieningen.pdf
2018	Bomenbeleid Utrecht	Tree Policy Utrecht	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/thematisch-beleid/bomen/2018-09-bomenbeleid-utrecht.pdf
2016	Kadernota Kwaliteit Openbare Ruimte	Framework Document Quality of Public Space	https://omgevingsvisie.utrecht.nl/fileadmin/uploads/documenten/zz-omgevingsvisie/thematisch-beleid/openbare-ruimte/2016-12-Kadernota-Kwaliteit-Openbare-Ruimte.pdf
2021	Handboek Openbare Ruimte	Handbook Public Space	https://www.utrecht.nl/fileadmin/uploads/documenten/ondernemen/vergunningen-en-regels/bing-beheer-inrichting-gebruik/handboek-openbare-ruimte-december-2021.pdf
2019	Samen stad maken op de Utrechtse manier	Shaping the City Together the Utrecht Way	https://www.utrecht.nl/fileadmin/uploads/documenten/bestuur-en-organisatie/beleid/participatie/2019-07-actieprogramma-samen-stad-maken-op-de-Utrechtse-manier.pdf

Appendix C: Interview Topic List Dutch

Welkom en bedankt voor uw deelname aan dit interview. Mijn naam is Rosaline Pinto en ik studeer momenteel de master ‘Sustainable Development’ (Duurzame Ontwikkeling), aan de Universiteit Utrecht. Hierin focus ik me op het bestuur en beleid van de transitie naar een duurzamere samenleving. Als onderdeel van mijn afstuderen, schrijf ik mijn scriptie over de ongelijkheid van stedelijk groen in Rotterdam en Utrecht en onderzoek ik de capaciteit van stakeholders - of anders gezegd de bestuurlijke capaciteit - om deze ongelijkheid aan te pakken. Stedelijk groen wordt namelijk steeds meer gebruikt door steden om de gevolgen van klimaatverandering aan te pakken. Echter komt er steeds meer onderzoek waaruit blijkt dat dit stedelijk groen ongelijk verdeeld is over de stad. Daarnaast blijkt uit onderzoek dat bewoners in kwetsbare wijken vaak minder goed (kunnen) worden betrokken bij het maken van beleid en besluiten omtrent stedelijk groen. Volgens de literatuur is bestuurlijke capaciteit nodig om problemen omtrent de ongelijkheid aan te pakken. Deze bestuurlijke capaciteit bestaat uit een pakket van indicatoren waaraan moet worden voldaan om problemen op te lossen.

Om te onderzoeken of ongelijkheid omtrent stedelijk groen ook het geval is in Nederland, doe ik onderzoek naar twee grote steden in Nederland, namelijk Rotterdam en Utrecht om te onderzoeken hoe en of er momenteel wordt omgegaan met de ongelijkheid van stedelijk groen. Mijn onderzoek is daarom gericht op het beter begrijpen van rechtvaardigheid van het huidige beleid rondom stedelijk groen en hoe dit beleid kwetsbare groepen beïnvloedt en meeneemt in het besluitvormingsproces. Met behulp van interviews probeer ik het huidige beleid uit een te zetten en de percepties en ervaringen van stakeholders over de rechtvaardigheid van het proces omtrent stedelijk groen in kaart te brengen.

Consent

- U kunt zelf ervoor kiezen in welke mate u anoniem wilt blijven. Dat betekent dat u er voor kunt kiezen of uw naam wordt genoemd, uw functie en/of uw organisatie. Mocht u anoniem willen blijven, dan zal alles wat u zegt of schrijft vertrouwelijk zijn. Dit betekent dat we niet naar uw naam en/of functie en/of organisatie vragen, en niemand zal weten welke respondent wat gezegd heeft.
- Als u toestemming geeft, zal het interview worden opgenomen. Dit helpt me tijdens het onderzoeksproces en de data-analyse. Het interview zal dan worden getranscribeerd en worden geanalyseerd via het codeerprogramma Nvivo, wat wordt verkregen via de

Universiteit Utrecht. Aan de hand van uw keuze van anonimiteit, zal de data ook op deze manier worden opgeslagen.

- Uw antwoorden op de vragen worden gedeeld met het onderzoeksteam. Wij zullen uw persoonsgegevens vertrouwelijk en in overeenstemming met de wetgeving inzake gegevensbescherming (de Algemene Verordening Gegevensbescherming en de Wet Persoonsgegevens) verwerken.
- Deelname aan dit gesprek is vrijwillig en u kunt het gesprek op elk moment zonder redenen beëindigen.
- Gelieve de vragen eerlijk te beantwoorden en voel je vrij om alles te zeggen of te schrijven wat je wilt.
- Voel u vrij om ook vragen te stellen als iets niet duidelijk is of als u ergens meer over wil weten.
- Achteraf is er de mogelijkheid om het transcript te lezen en eventueel fout geformuleerde teksten te herzien. Interpretaties en/of conclusies zijn de verantwoordelijkheid van de onderzoekers.

Vragen

Allereerst worden enkele vragen gesteld over de zogenoemde bestuurlijke capaciteit om ongelijksheidsvraagstukken aan te pakken, denk hierbij bijvoorbeeld aan de beschikbaarheid van informatie, het betrekken van stakeholders en monitoren van projecten. Daarnaast worden vragen gesteld om in kaart te brengen hoe er met distributieve, procedurele en erkenning van rechtvaardigheid wordt omgegaan in projecten omtrent stedelijk groen en hoe dit wordt ervaren.

De onderstaande sub-onderwerpen en vragen worden gebruikt als richtlijn van het interview. Aangezien de interviews semi gestructureerd zijn en niet alle vragen relevant zijn voor alle stakeholders, zal een selectie worden gemaakt van de vragen voordat het interview plaatsvindt.

Onderwerp	**Sub-onderwerp**	**Vragen**
Introductie	● Naam ● Werk ● Functie ● Kennis over / ervaring met stedelijk groen	● Zou u uzelf kunnen voorstellen (naam, werk, functie)? ● Zou u iets kunnen vertellen over uw rol omtrent stedelijk groen en welke ervaringen u er mee heeft?
(On)gelijkheid stedelijk groen: deze vragen gaan over hoe u of uw organisatie ongelijkheid omtrent stedelijk groen ervaart in de praktijk.		
Verdeling van stedelijk groen	● Toegang ● Beschikbaarheid ● Distributie ● Gebrek aan stedelijk groen ● Kwaliteit van stedelijk groen / onderhoud ● Ongelijkheid ● Verschil tussen wijken	● Wordt de distributie/verdeling van stedelijk groen meegenomen bij de plannen omtrent stedelijk groen? ● Wat zijn de normen voor spreiding van stedelijk groen en hoe wordt bepaald of deze normen worden gehaald? ● Zijn er volgens u verschillen tussen wijken als het gaat om de distributie en / of kwaliteit van stedelijk groen? ● Worden er maatregelen genomen om ervoor te zorgen dat er voldoende stedelijk groen is voor alle inwoners? Kunt u hiervan een voorbeeld geven? ● Welke uitdagingen of barrières zijn er omtrent de eerlijke distributie van stedelijk groen?
Procedurele (on)rechtvaardigheid	● Eerlijke besluitvorming ● Toegang tot informatie ● Publieke inspraak ● Betrokkenheid	● Welke mogelijkheden zijn er voor stakeholders om te participeren in groen projecten? Denk aan het geven van een mening, openbare hoorzittingen en informatiebijeenkomsten ● Op welke manier wordt er rekening gehouden met de belangen van verschillende stakeholders tijdens het besluitvormingsproces? ● Hoe wordt feedback van burgers of belanghebbenden

		geïntegreerd in de besluitvorming? ● Welke uitdagingen of beperkingen zijn er bij het realiseren van procedurele rechtvaardigheid en hoe worden deze aangepakt?
Erkenning van (on)rechtvaardigheid	● Inclusie ● Eerlijke vertegenwoordiging van stakeholders ● Erkenning: onderkennen, verkeerd erkennen en/of uitsluiten van bepaalde groepen binnen ● Erkenning van de verschillende kruisende identiteiten van de leden van de gemeenschap	● Worden bij groenprojecten of in uw organisatie onderscheid gemaakt tussen verschillende bevolkingsgroepen? Denk hierbij bijvoorbeeld aan achterstandswijken of ouderen. ● Zo ja, wat voor groepen? ● Zijn er volgens u groepen die een ongelijke toegang hebben tot stedelijk groen en / of het besluitvormingsproces omtrent stedelijk groen? ● Zo ja, hoe komt dat denkt u? ● Hoe wordt hiermee omgegaan binnen uw organisatie? ● Worden er stappen ondernomen om ervoor te zorgen dat alle stakeholders eerlijk worden vertegenwoordigd in het besluitvormingsproces omtrent stedelijk groen?
Bestuurlijke capaciteit: deze vragen gaan over hoe uw organisatie kwesties omtrent (de ongelijkheid van) stedelijk groen aanpakt		
Awareness	● Kennis van de gemeenschap ● Lokaal gevoel van urgentie ● Verinnerlijking van het gedrag	● Wat is het niveau van kennis en bewustzijn binnen jullie organisatie over (on)rechtvaardigheid van stedelijk groen? Wat verstaan jullie onder (on)rechtvaardigheid van stedelijk groen? ● In hoeverre heeft u / uw organisatie het gevoel van urgentie om de (on)rechtvaardigheid van stedelijk groen aan te pakken? ● Welke maatregelen worden er genomen binnen uw organisatie om stedelijke

		groene (on)rechtvaardigheid aan te pakken?
Useful knowledge	• Beschikbaarheid informatie • Transparante informatie • Kenniscohesie	• In hoeverre is er informatie beschikbaar over stedelijk groen en de (on)rechtvaardigheid van stedelijk groen? • Wordt deze informatie gedeeld met stakeholders? • Hoe wordt de informatie over stedelijk groen gedeeld met stakeholders? • Is alle informatie omtrent stedelijk groen begrijpbaar voor alle stakeholders? (Denk aan moeilijke vaktermen, taal etc.) • Wordt er binnen uw organisatie met andere afdelingen of medewerkers gecommuniceerd over ongelijkheid omtrent stedelijk groen? • Is de inhoud van deinformatie die wordt gedeeld uniform?
Continuous learning	• Monitoren • Evalueren • Leerprocessen tussen belanghebbenden	• Monitort uw organisatie de groenprojecten? • Zo ja, hoe gebeurt dat? • In hoeverre wordt een groenproject geëvalueerd? • Heeft dit geleid tot aanpassing van standpunten? • Wordt dit ook gedaan met andere stakeholders? • Wordt er bij groenprojecten met andere stakeholders overlegd? Wat wordt er met deze informatie gedaan? • Heeft dit geleid tot aanpassing van standpunten?
Stakeholder engagement process	• Inclusiviteit van stakeholders • Bescherming van kernwaarde • Vooruitgang en diversiteit aan opties	• Welke stakeholders zijn betrokken bij groenprojecten bij uw organisaties? • Hoe worden stakeholders betrokken bij stedelijk groen projecten bij uw organisatie (informeren, participeren, meebeslissen)?

		• Worden de belangen van stakeholders meegenomen? Zo ja, hoe? Zo nee, waarom niet? • Kunnen stakeholders meebeslissen bij groenprojecten? • Worden bij groenprojecten verschillende opties overwogen en krijgen stakeholders de kans om hun ideeën en feedback te geven over deze opties?
Agents of change	• Ondernemende agents • Samenwerkende agents • Visionaire agents	• Zie vragen stakeholder engagement process, procedural en recognitional (in)justice
Multi-level network potential	• Ruimte om te manoeuvreren • Duidelijke verdeling van verantwoordelijkheden • Autoriteit	• Is er binnen uw organisatie de vrijheid om ongelijkheid binnen stedelijk groen te agenderen en aan te pakken en hiervoor ook samenwerkingen aan te gaan? • Zijn de verantwoordelijkheden binnen uw organisatie duidelijk geformuleerd en toegewezen om stedelijke groene (on)rechtvaardigheid effectief aan te pakken? • Wie heeft de bevoegdheid om beslissingen te nemen omtrent (de (on)gelijkheid van) stedelijk groen? Hoe worden deze beslissingen genomen?
Implementing capacity	• Financiële middelen • Beleidsinstrumenten • Wettelijke naleving	• Zijn er voldoende economische middelen beschikbaar binnen uw organisatie om de kwestie van (on)rechtvaardigheid in de stedelijke groene ruimte aan te pakken? • Worden er beleidsinstrumenten gebruikt om (on)rechtvaardigheid in de stedelijke groene ruimte aan te pakken? Denk hierbij aan wetten, regelgeving, richtlijnen en andere maatregelen.

		• Werken deze beleidsinstrumenten effectief binnen uw organisatie of zijn er aanpassingen nodig? • Is er wetgeving omtrent (on)rechtvaardigheid van stedelijk groen? • Is de wetgeving omtrent (on)rechtvaardigheid van stedelijk groen duidelijk? • Wordt er goed aan deze wetgeving gehouden door uw organisatie of door andere stakeholders?

Note. Er is een verschil tussen wat ze doen en hoe ze het zouden willen doen.

Note. Niet vergeten te vragen naar uitdagingen, barrières en aanbevelingen.

Appendix D: Interview Topic List English

Welcome and thank you for participating in this interview. My name is Rosaline Pinto, and I am currently pursuing a Master's degree in Sustainable Development at Utrecht University. My focus is on governance and policy related to the transition to a more sustainable society. As part of my thesis, I am studying the inequality of urban green spaces in Rotterdam and Utrecht and examining the capacity of stakeholders, or in other words, the governance capacity, to address this inequality. Urban green spaces are increasingly being used by cities to address the impacts of climate change. However, there is growing evidence that these urban green spaces are unevenly distributed across the city. Moreover, research indicates that residents in vulnerable neighborhoods are often less effectively involved in the policymaking and decision-making processes regarding urban green spaces. According to the literature, governance capacity is necessary to address issues related to inequality. This governance capacity consists of a set of indicators that need to be met to solve problems.

To investigate whether inequality regarding urban green spaces also exists in the Netherlands, I am conducting research in two major cities, Rotterdam and Utrecht, to explore how and if the inequality of urban green spaces is currently being addressed. My research aims to better understand the justice aspects of current policies concerning urban green spaces and how these policies affect and involve vulnerable groups in the decision-making process. Through interviews, I aim to explore the current policies and map the perceptions and experiences of stakeholders regarding the justice of the process concerning urban green spaces.

Consent

- You can choose the level of anonymity you prefer. This means that you can choose whether your name, position, and/or organization will be mentioned. If you choose to remain anonymous, everything you say or write will be kept confidential. This means that we will not ask for your name, position, or organization, and no one will know which respondent said what.
- If you give consent, the interview will be recorded. This will assist me during the research process and data analysis. The interview will be transcribed and analyzed using the coding software Nvivo, obtained through Utrecht University. Depending on your choice of anonymity, the data will also be stored accordingly.

- Your answers to the questions will be shared with the research team. We will process your personal data confidentially and in accordance with data protection laws (General Data Protection Regulation and the Personal Data Protection Act).
- Participation in this conversation is voluntary, and you can end the conversation at any time without providing a reason.
- Please answer the questions honestly, and feel free to say or write whatever you want.
- If anything is unclear or if you would like more information about something, feel free to ask questions.
- Afterward, there will be an opportunity to read the transcript and revise any inaccurately formulated texts. Interpretations and/or conclusions are the responsibility of the researchers.

Questions

First, there will be some questions about the so-called governance capacity to address issues of inequality, such as the availability of information, stakeholder involvement, and project monitoring. Additionally, questions will be asked to assess how distributive, procedural, and recognition justice are addressed in projects related to urban green spaces and how they are experienced.

The following subtopics and questions will serve as a guideline for the interview. Since the interviews are semi-structured and not all questions are relevant to all stakeholders, a selection of questions will be made before the interview takes place.

Topic	**Subtopics**	**Predefined questions**
Introduction	• Name • Work • Function • Knowledge about urban greening • Experience with urban greening	• Can you introduce yourself? (name, work, function) • Can you tell something about your experience with urban greening? • According to you, what is justice in the context of urban green spaces? What does it encompass?
Distributional (in)justice	• Access • Availability • Distribution • Lack of urban greening	• Is the distribution of urban green spaces considered in urban green planning?

	• Inequality • Difference between neighborhoods • Quality of urban greening/maintenance	• What are the standards for the distribution of urban green spaces, and how is it determined whether these standards are met? • In your opinion, are there differences between neighborhoods regarding the distribution and/or quality of urban green spaces? • Are measures taken to ensure sufficient urban green spaces for all residents? Could you provide an example? • What challenges or barriers exist regarding the fair distribution of urban green spaces?
Procedural (in)justice	• Fair and equitable decision-making • Access to information • Public participation • Engagement	• What opportunities exist for stakeholders to participate in green projects? This could include providing opinions, public hearings, and information sessions. • How are the interests of different stakeholders taken into account during the decision-making process? • How is feedback from citizens or stakeholders integrated into the decision-making process? • What challenges or limitations are encountered in achieving procedural justice, and how are they addressed?
Recognitional (in)justice	• Inclusion • Fair representation of all stakeholders • Recognition: acknowledging, misrecognizing, and/or excluding certain groups within • Recognition of the intersecting identities of community members	• Is there a distinction made between different population groups in green projects? This could include disadvantaged neighborhoods or the elderly, for example. • If yes, what groups are targeted? • In your opinion, are there groups that have unequal access to urban green spaces and/or the decision-

		making process related to urban green spaces? ● If yes, what do you think is the reason for this? ● How is this addressed within your organization? ● Are steps being taken to ensure that all stakeholders are fairly represented in the decision-making process concerning urban green spaces?
Governance capacity: These questions pertain to how your organization addresses issues related to (the inequality of) urban green spaces.		
Awareness	● Community knowledge ● Local sense of urgency ● Behavioral internalization	● What is the level of knowledge and awareness within your organization regarding (in)justice of urban green spaces? What do you understand by (in)justice of urban green spaces? ● To what extent do you/your organization feel a sense of urgency to address the (in)justice of urban green spaces? ● What measures are being taken within your organization to address the (in)justice of urban green spaces?
Useful knowledge	● Information availability ● Information transparency ● Knowledge cohesion	● To what extent is information available about urban green spaces and the (in)justice of urban green spaces? ● Is this information shared with stakeholders? ● How is information about urban green spaces shared with stakeholders? ● Is all information regarding urban green spaces understandable for all stakeholders? (Considering complex terminology, language, etc.) ● Is there communication within your organization with other departments or employees regarding

		inequality related to urban green spaces? ● Is the content of the shared information uniform?
Continuous learning	● Smart monitoring ● Evaluation ● Cross-stakeholder learning	● Does your organization monitor green projects? ● If yes, how is it done? ● To what extent are green projects evaluated? ● Has this led to adjustments in viewpoints? ● Is this also done with other stakeholders? ● Is there consultation with other stakeholders in green projects? What is done with this information? ● Has this led to adjustments in viewpoints?
Stakeholder engagement process	● Stakeholder inclusiveness ● Protection of core values ● Progress and variety of options	● Which stakeholders are involved in green projects within your organization? ● How are stakeholders engaged in urban green projects within your organization (informing, participating, decision-making)? ● Are the interests of stakeholders taken into account? If yes, how? If not, why not? ● Can stakeholders participate in decision-making in green projects? ● Are different options considered in green projects, and do stakeholders have the opportunity to share their ideas and provide feedback on these options?
Agents of change	● Entrepreneurial agents ● Collaborative agents ● Visionary agents	● See questions stakeholder engagement process, procedural and recognitional (in)justice
Multi-level network potential	● Room to maneuver ● Clear division of responsibilities ● Authority	● Is there freedom within your organization to address and tackle inequality within urban green spaces and to engage

		in collaborations for this purpose? ● Are the responsibilities within your organization clearly defined and assigned to effectively address urban green (in)justice? ● Who has the authority to make decisions regarding (in)equality of urban green spaces? How are these decisions made?
Implementing capacity	● Financial resources ● Policy instruments ● Statutory compliance	● Are there sufficient economic resources available within your organization to address the issue of (in)justice in urban green spaces? ● Are policy instruments used to address (in)justice in urban green spaces? This includes laws, regulations, guidelines, and other measures. ● Do these policy instruments work effectively within your organization, or are adjustments needed? ● Is there legislation regarding (in)justice of urban green spaces? ● Is the legislation regarding (in)justice of urban green spaces clear? ● Is this legislation well adhered to by your organization or other stakeholders?

Note. There is a difference between what they do and how they would like to do it.

Note. Don't forget to ask about challenges, barriers, and recommendations.